

# INDIANA VOCATIONAL TECHNICAL COLLEGE

---

Catalog 1992-1994



Ivy Tech  
Indiana's Technical College

**The college calendar varies from region to region. Ivy Tech is on a semester schedule. Fall and spring semesters are sixteen weeks long and the summer term is eleven weeks long. Specific start and end dates can be learned by calling a program site listed on page vi.**

# **IVY TECH CATALOG 1992-1994**

**INDIANA VOCATIONAL TECHNICAL COLLEGE**



**IVYTECH**

**Indiana's Technical College**

# **NONDISCRIMINATION POLICY AND EQUAL OPPORTUNITY/AFFIRMATIVE ACTION PROGRAM**

Indiana Vocational Technical College seeks to develop degree credit programs, courses, and community service offerings and to provide open admission, counseling, and placement services for all persons, regardless of race, color, creed, religion, sex, national origin, physical or mental handicap, age or veteran status.

## **CATALOG DISCLAIMER**

This catalog is intended to supply accurate information to the reader. From time to time, certain information may be changed.

The College may revise any matter described in this catalog at any time without publishing a revised version of the catalog. Courses, programs, curricula, and/or program requirements may be changed or discontinued at any time. Information which appears to apply to a particular student should be verified by the Office of Student Services in your region. Regional information is found on page vi. This publication and its provisions are not in any way a contract between the student and Indiana Vocational Technical College.



## STATE BOARD OF TRUSTEES

V. William Hunt	John R. Davis
Chairman	Logansport
Columbus	Robert G. Dunderman
Casper J. Alessi, Jr.	Fort Wayne
Vice Chairman	Dennis L. Huber
Indianapolis	Corydon
William R. Gutzwiller	Francis H. Lueken, Jr.
Secretary	Ferdinand
Batesville	Edward P. Merchant
Patrick H. Cahill	Marion
Terre Haute	Thomas E. Taylor
Pauline V. Carter	South Bend
Richmond	Joseph T. Bumbleburg
Timothy J. Collins	Lafayette
Hammond	

## COLLEGE OFFICERS

Gerald I. Lamkin	Darnell Cole	Sam E. Borden
President	Vice President/Chancellor	Vice President/Chancellor
Fred Gaskin	Region 1—Northwest	Region 7—Wabash Valley
Executive Vice President/ Regional Operations	Carl F. Lutz	Meredith L. Carter
Charles W. Harris	Vice President/Chancellor	Vice President/Chancellor
Vice President/Development	Region 2—Northcentral	Region 8—Central Indiana
William D. Kramer	Region 5—Kokomo	Homer B. Smith
Vice President/Planning & Education	Jon L. Rupright	Vice President/Chancellor
William F. Morris	Vice President/Chancellor	Region 10—Columbus
Vice President/Administration	Region 3—Northeast	Region 11—Southeast
Thomas H. Taylor	H. Victor Baldi	Region 13—Southcentral
Vice President/Finance and Treasurer	Vice President/Chancellor	
<b>COLLEGE CENTRAL OFFICES</b>	Region 4—Lafayette	
One West 26th Street	Region 12—Southwest	
P.O. Box 1763	Judith A. Redwine	
Indianapolis, IN 46206	Vice President/Chancellor	
Phone (317) 921-4882	Region 6—Eastcentral	
	Region 9—Whitewater	



## MESSAGE FROM THE PRESIDENT

We appreciate the opportunity to show you, through the following pages, today's Indiana Vocational Technical College. For more than 25 years, Ivy Tech has been dedicated to providing the residents of Indiana a quality education that supports the economic demands of our state. While the original mission of our college has remained the same, we have grown and matured and now offer you a wider variety of learning opportunities.

Whatever your interests, Ivy Tech offers programs that will help you achieve your goals. Our curriculum includes career training, continuing education, transfer options, and custom-designed training for business and industry.

The College looks forward to the future and its challenges by continuously creating new programs of study. We are proud of our flexibility in educational programming because it allows us to provide you with the education and skills you'll need to build or upgrade your career in response to the needs of the community.

We invite you to examine this catalog and then put Ivy Tech to work for you. From the list of instructional centers on page vi, you may contact the center of interest nearest you for detailed information on registration, programs of study, and services for students.

Over the years, Ivy Tech not only has improved its programs and services to the community but also has remained committed to our first priority—you, the student. As we prepare for the College's future, we're preparing for yours. It's an exciting prospect, and we hope you will join us for the Ivy Tech educational experience.

A handwritten signature in cursive script that reads "Gerald I. Lamkin". The signature is written in dark ink and is positioned above the printed name.

Gerald I. Lamkin, President

# TABLE OF CONTENTS

## IVY TECH INVORMATION

State Board of Trustees	ii
College Officers	ii
Message from the President	iii
College Profile	v
Degree Program Sites	vi

## STUDENT SERVICES INFORMATION

Admissions	1
Academic Assessment	1
Transfer	2
Registration	3
Cost	3
Refund Policy	4
Financial Aid	4
Student Records	7
Grading	8
Status Codes	8
Withdrawal	9
Grade Point Averages	10
Improving Grades	10
Standards of Progress	10
Graduation	10
Student Services	11
Student Organizations	11
Student Rights and Responsibilities	13

## INSTRUCTIONAL PROGRAMS

Associate in Science (AS) Degree Programs	17
Associate in Applied Science (AAS)	
Degree Programs	17
Technical Certificate (TC) Programs	17
Short-Term Programs	17
Business and Industry Training Programs	18
Basic Skills Advancement Program	18
Course Numbering System	19

## DIVISION OF BUSINESS, OFFICE AND INFORMATION SYSTEMS TECHNOLOGIES

Accounting Technology	22
Administrative Office Technology	27
Business Management	31
Computer Information Systems	34
Culinary Arts Technology	40
Distribution Management	43
Hotel/Motel Management	45
Industrial Supervision Technology	49
Marketing Technology	53
Paralegal Technology	56
Statistical Process Control Technology	59

## DIVISION OF VISUAL COMMUNICATIONS TECHNOLOGIES

Commercial Photography	63
Commercial Video Technology	67
Graphic Design	70
Graphic Media Production Technology	73
Interior Design Technology	78

## DIVISION OF HUMAN SERVICES AND HEALTH TECHNOLOGIES

Child Development	82
Early Childhood Development	85
Dental Assistant	87
Food Service Technology	89
Human Services Technology	91
Medical Assistant	95
Medical Laboratory Technician	99
Mental Health Rehabilitation Technology	102
Nursing, Associate in Science in	105
Nursing, Practical	109
Radiologic Technology	112
Respiratory Care	115
Surgical Technology	118

## DIVISION OF APPLIED SCIENCES AND TECHNOLOGIES

Applied Fire Science Technology	121
Automated Manufacturing Technology	125
Automotive Body Repair Technology	128
Automotive Service Technology	131
Barbering Technology	134
Building Construction Technology	137
College/Industry Job Title Program	141
Drafting/CAD Technology	142
Electronics Technology	146
Environmental Care Technology	150
Heating/Air Conditioning/Refrigeration Technology	153
Industrial Laboratory Technology	156
Industrial Maintenance Technology	158
Machine Tool Technology	161
Manufacturing Processes-Plastics Technology	164
Mining Operations Technology	166
Recreational Vehicle Service Technology	170
Welding Technology	173

## INSTRUCTIONAL SUPPORT

General Education	177
Basic Skills Advancement	183

## ACCREDITATIONS

## IVY TECH FOUNDATION

## INDEX

## IVY TECH PROGRAMS BY CAMPUS

# COLLEGE PROFILE

## Moving Forward

In just over a quarter of a century, Indiana Vocational Technical College, popularly known as Ivy Tech, has grown from an idea to a thriving post-secondary institution. In 1963, the Indiana General Assembly established Ivy Tech as Indiana's first statewide vocational technical college by appropriating \$50,000 for its development. Following appointment of a State Board of Trustees, a president was named and the first training program established in 1965. Later amendments to the enabling legislation authorized Ivy Tech's present regional structure of thirteen administrative centers designed to provide accessible technical educational opportunities to all Indiana citizens. Between 1966 and 1969 thirteen regional boards of trustees were appointed and thirteen regions chartered.

The mission of Ivy Tech is stated in the authorizing legislation: "There shall be, and hereby is created and established, a new state post-high school educational institution to be devoted primarily to occupational training of a practical, technical, and semi-technical nature for the citizens of Indiana."

Ivy Tech's mission was broadened in 1971 by the added authority to grant diplomas and certificates, including one-year Technical Certificates and two-year Associate degrees, to students successfully completing prescribed programs. Furthermore, the College was granted permission to offer general education courses for vocational technical education programs.

The College has shown impressive growth in its relatively short history. Enrollment increased from 3,233 students in the fall quarter of 1968 to 30,711 in the fall of 1991.

Within the statewide Ivy Tech system, more than 2,000 full- and part-time faculty members teach in 47 program areas offered in four instructional divisions: Business, Office and Information Systems Technologies; Visual Communications Technologies; Human Services and Health Technologies; and Applied Science and Technologies. A fifth division—General Education and Support Services—undergirds, broadens and augments the College's technical curricula.

The College's regional offices of Business and Industry Training work closely with Indiana businesses to offer customized training and retraining in response to specific company needs. These training programs are available at Ivy Tech or in-plant.

## College Mission and Goals

The mission and goal statements adopted by the State Board of Trustees in October, 1991 are as follows:

### Mission Statement

Indiana Vocational Technical College (Ivy Tech or IVTC) is a public, statewide, open-access, community-based, technical college. The College's mission is to enable individuals to develop to their fullest potential and to support the economic development of Indiana. Ivy Tech prepares residents of Indiana with the general and technical education needed for successful careers or for continuation in further higher education. The College provides courses, degree programs, counseling and related services, technical assistance, and community service to individuals, communities, and businesses and industries across the state. Ivy Tech promotes educational mobility through partnerships with local schools and other higher education institutions.

### College Goals

1. To promote and expand access to programs and services that meet students' abilities, interests, and potentials.
2. To ensure that every graduate of an Ivy Tech program possesses the technical skills to be successful in the workplace.
3. To provide a wide range of continually improving educational programs and services to individuals, businesses, industries, and communities throughout the state.
4. To contribute to Indiana's economic development by providing the skilled workforce needed to attract and retain businesses and industries.
5. To serve the diverse populations that reside in the state.
6. To promote opportunities for individuals who have the ability, potential, and desire to continue their education at a four-year institution.
7. To promote mastery of the general education skills needed to be successful in higher education and in the workplace.
8. To increase educational participation in Indiana.



## DEGREE PROGRAM SITES

### **Anderson**

104 West 53rd Street  
Anderson, IN 46013-1502  
Phone: (317)643-7133

### **Bloomington**

3116 Canterbury Court  
Bloomington, IN 47404-0393  
Phone: (812)332-1559

### **Columbus**

4475 Central Avenue  
Columbus, IN 47203-1868  
Phone: (812)372-9925

### **Elkhart**

2521 Industrial Parkway  
Elkhart, IN 46516-5430  
Phone: (219)293-4657

### **Evansville**

3501 First Avenue  
Evansville, IN 47710-3398  
Phone: (812)426-2865

### **Fort Wayne**

3800 N. Anthony Boulevard  
Fort Wayne, IN 46805-1489  
Phone: (219)482-9171

### **Gary**

1440 East 35th Avenue  
Gary, IN 46409-1499  
Phone: (219)981-1111

### **Greencastle**

1845 South Bloomington Street  
Greencastle, IN 46135-9777  
Phone: (317)653-7410

### **Hammond**

5727 Sohl Avenue  
Hammond, IN 46320-2356  
Phone: (219)937-9422

### **Indianapolis**

One West 26th Street  
Indianapolis, IN 46208-4777  
Phone: (317)921-4800

### **Kokomo**

1815 East Morgan Street  
Kokomo, IN 46903-1373  
Phone: (317)459-0561

### **Lafayette**

3208 Ross Road  
Lafayette, IN 47905-5217  
Phone: (317)477-9100

### **Lawrenceburg**

575 Main Street  
Lawrenceburg, IN 47025-1661  
Phone: (812)537-4010

### **Logansport**

Eastgate Plaza  
U.S. 24 Highway East  
Logansport, IN 46947-2149  
Phone: (219)753-5101

### **Madison**

590 Ivy Tech Drive  
Madison, IN 47250-1881  
Phone: (812)265-2580

### **Marion**

2983 West 38th Street  
Marion, IN 46953-9370  
Phone: (317)662-9843

### **Muncie**

4301 So. Cowan Road  
Muncie, IN 47302-9448  
Phone: (317)289-2291

### **Richmond**

2325 Chester Boulevard  
Richmond, IN 47374-1298  
Phone: (317)966-2656

### **Sellersburg**

8204 Highway 311  
Sellersburg, IN 47172-1897  
Phone: (812)246-3301

### **South Bend**

1534 West Sample Street  
South Bend, IN 46619-3892  
Phone: (219)289-7001

### **Tell City**

3100 Tell Street  
Tell City, IN 47586-0353  
Phone: (812)547-7915

### **Terre Haute**

7999 U.S. Highway 41  
Terre Haute, IN 47802-4898  
Phone: (812)299-1121

### **Valparaiso**

2401 Valley Drive  
Valparaiso, IN 46383-2520  
Phone: (219)464-8514

### **Warsaw**

850 East Smith Street  
Warsaw, IN 46580-4546  
Phone: (219)267-5428



# COLLEGE INFORMATION AND SERVICES

## ENTERING THE COLLEGE

### Admissions—Non-Degree Objective

Ivy Tech offers courses in many special career areas, including college preparation. Persons interested in taking any of the Ivy Tech courses are invited to do so. Admission as a non-degree student is easy. Simply file a completed registration form in the Student Services Office.

### Admissions—Degree Objective

For admission as a regular student to one of Ivy Tech's programs leading to an Associate Degree or Technical Certificate, the standard requirement is a high school diploma or GED certificate. The Student Services Office will assist the student, on request, in obtaining an official copy of the diploma or GED certificate, which must be issued from the previously attended institution.

All applicants are advised to participate in assessment testing. Students who do not have either a high school diploma or GED are *required* to complete testing before they can begin a program or receive financial assistance. The purposes of assessment testing are to measure the student's achievement in basic skills areas of mathematics, reading, writing, reasoning, and communication, and, secondly, to assist the student in the selection of an occupational program. If assessment indicates that the applicant has the basic skills needed for success in the chosen program he/she may be allowed to begin program level coursework. If the assessment reveals skill deficiencies, the applicant will be advised to complete appropriate remedial coursework. Applicants may enroll in program courses when identified academic deficiencies are not prerequisites for successful completion of the program course. Students may be eligible for financial aid during this period.

If the assessment indicates that the applicant is unlikely to achieve success at Ivy Tech, he or she will be referred to an appropriate community resource offering the needed assistance. The applicant may enter the admissions process at a later date, following completion of skills upgrading.

Assessment testing may be waived if the applicant submits either:

- (a) an official transcript from an accredited post-secondary institution indicating achievement consistent with Ivy Tech's admission standards;
- (b) acceptable standardized test scores (i.e., SAT, ACT).

The College reserves the right to guide the enrollment of students in particular programs or courses on the basis of past academic records, vocational/technical counseling, and testing.

Students seeking admission to certain health occupation programs may be requested to take part in specific pre-enrollment assessments and/or interviews to fulfill College or external agency requirements. Certain prerequisites, such as health examinations, may be required before enrolling in specific programs or courses.

### Basic Skills Advancement Program Services

Ivy Tech technical institutes and major instructional centers offer Basic Skills Advancement Programs to help ensure the success of students in the completion of their educational goals. This supplemental program is designed for students enrolled in regular programs or courses at the College who are encountering academic difficulty or have been identified as having encountered academic difficulty in the past. Ivy Tech is concerned about the success of its students, and this program is designed to ensure that every student has the opportunity to be successful.

Services provided through the Basic Skills Advancement Program include diagnostic testing and assessment, financial aid counseling, career counseling, placement services and instruction. The need for these services may be identified at the time of admission; however, a student may utilize any or all services upon encountering academic difficulty during a course of study. Professional basic skills advancement instructors and laboratory technicians provide supplemental instruction in the areas of math, communications, sciences, human relations, GED preparation and study skills. The delivery of instruction may be a basic skills advancement course in a classroom setting, it may be offered to students one-on-one as tutorial assistance, or as a self-paced study in the Basic Skills Center. For further information about the College's Basic Skills Advancement Programs, the student should contact either the Student Services Office or the Basic Skills Center.

### Readmission

Should a course of study at Ivy Tech be interrupted, students may request readmission at a later date. This may be accomplished by contacting the Student Services Office. Information on eligibility for financial aid will be available to returning students.



## Limited Admissions Enrollment

Sometimes the number of students admitted and enrolled in programs and/or courses may be limited by College resources or facilities—including available lab equipment and related support, or the number of available health program clinical work stations. The Student Services Office should be contacted regarding programs which have limited access.

## Admission Procedures and Support Documents—Degree Objective

1. The College requires all students to complete the student admission data form, which establishes records in the Admissions Office.
2. Proof of high school graduation or GED completion is normally required for admission into a program leading to a certificate or a degree. The high school graduate or individual who has the GED should request the secondary school or testing center to send an official copy of the transcript or GED certification to the Admissions Office by the end of the first semester of attendance.
3. The College has counselors available to assist students in selecting a course of study at Ivy Tech.
4. The College recommends that program declared students either provide acceptable standardized test scores or participate in the College's diagnostic testing program. NOTE: If a student has neither a high school diploma nor a GED, he/she *must* receive passing scores on the College's diagnostic tests.
5. Should a student wish to transfer a credit to Ivy Tech from another college or similar post-secondary institution previously attended, the student must forward an official copy of the grade transcript or other document from that institution to Ivy Tech before enrolling for courses if applying for financial aid, or no later than halfway through the first semester of enrollment or re-enrollment.
6. The College requires a health examination for certain programs.

## Advanced Standing

Prior education and formal training may be presented for evaluation leading to advanced placement. Students may be allowed to enter programs with advanced standing. In many cases, credit may be awarded through transfer of credit from other postsecondary institutions, challenge examinations, the College Level Examination Program (CLEP) or military experience, with the training period shortened proportionally.

## Transferring to the College

The College encourages students who have previously attended other recognized colleges and universities, adult education programs, and high school vocational technical programs to have their transcripts forwarded to Ivy Tech so the College can consider them for transfer of credit and/or advanced placement by the midpoint of the first semester of enrollment or re-enrollment. Students are responsible for providing pertinent course descriptions and/or copies of the college catalog(s) if further documentation is needed to facilitate the transfer credit review. The College will be glad to assist individuals with the evaluation of their prior educational experiences.

The College reserves the right to refuse admission or to accept conditionally those students who have been dismissed for disciplinary reasons from other colleges or universities.

## Transferring to Other Colleges

It is the right and responsibility of the receiving institution to decide whether to accept credits from another institution. The associate in applied science degree (A.A.S.) and the certificate programs offered by Ivy Tech are intended to prepare students with the necessary knowledge and skills to enter or advance in the workplace. In general, the A.A.S. and certificate programs are not designed to transfer to other institutions. However, some receiving institutions will permit a student to receive credit for a course upon successful completion of an examination or to receive credit for courses completed as part of an A.A.S. or certificate program. Ivy Tech does offer associate in science (A.S.) degree programs at certain sites which, through agreements with specific institutions, are designed to transfer. Students interested in transfer programs and credit by examination should check with the Student Services Office.

## International Students

International students must meet the College admission standards and certain other requirements. International students should apply for admission to Ivy Tech at least ninety (90) days prior to the beginning of the term they wish to attend.

An international student must also provide proof of adequate financial support for College fees and living expenses for each year while attending the College. The international student should submit a letter from an appropriate sponsor, government official, or bank official stating that sufficient funds are available to cover the cost of the student's education and that these funds will be available to the student while attending college in this country.



## Handicapped Students

College programs and facilities are designed to be accessible to handicapped students. Each regional institute has designated parking and special restroom facilities for the physically handicapped. Support services will also aid handicapped students with career planning, financial aid, personal counseling, and placement. The College staff works with The Department of Vocational Rehabilitation and other service agencies to assist physically and psychologically impaired students through available local community resources.

Students with handicaps are urged to contact the Student Services Office for help with their special challenges as students at Ivy Tech.

## Student Orientation

All new degree students are encouraged to participate in an orientation program prior to or during the first week of classes. The purpose of the orientation is to assist students in making the transition to the college environment. Topics discussed include student services, financial aid, business services, instructional programs, and college activities, policies and procedures.

## TEST-OUT PROCEDURES

Policies regarding testing out of courses vary from program to program. A student who wishes to test out of a course should contact the program advisor. A \$5.00 per credit hour fee may be charged for the tests.

The general guidelines for test-out are as follows:

1. Test-out examinations should be taken before registering for the course for which the test-out is attempted.
2. Test-out examinations are normally completed at one sitting (unless the test is offered in two parts, i.e., lab and written exams).
3. Test-out credits are not included in credit computations for financial aid programs or student grade point averages.

## REGISTRATION

### Registering for Courses

The registration process includes financial aid and program counseling, selection of courses, and payment of fees. Newly admitted students will be notified of when to register for their first semester classes.

Specified days are set aside for registration before the beginning of each semester. Students should seek assistance in course selection from faculty advisors or

counselors in the Student Services Office before registering for classes.

The Student Services Office of each Ivy Tech region can supply information concerning registration.

**NOTE: STUDENTS ARE REGISTERED WHEN FEES HAVE BEEN SATISFIED.**

### Open/Late Registration

Open registration will begin before the start of the term. Registration after the first day of classes each term is considered late. Students may register after the first week of classes with the permission of the instructor, however, a late registration fee may be assessed any time after the first day of classes. For further information, students are asked to contact the Student Services Office.

### Drop and Add

Courses may be dropped or added during the first two weeks of the regular semester. Students may be eligible for a full or partial refund of the assessed fees for courses dropped during the first four weeks of the semester. Courses are not officially dropped until the necessary forms have been completed and returned to the Student Services Office. After the first week of the semester, students will need to receive the permission of the instructor to add a course.

### Student Withdrawal

From the beginning of the second week to the end of the week marking the completion of 75% of the course, a student may withdraw from a course by filing a withdrawal form at the Student Services Office and discontinuing class attendance. (Students may be eligible for a full or partial refund of the assessed fees—see below.) Records will then indicate status of "W" in place of a grade for that course. The Student Withdrawal is complete when the necessary forms have been submitted to the Office of Student Services.

A student who discontinues class attendance after the last day to withdraw with a "W" will receive a grade commensurate with the course requirements. **NOTE:** Withdrawing from class may affect or cancel your financial assistance.

Further information is available from the Student Services Office.

## COLLEGE FEES

The College seeks to provide quality education at the lowest possible cost. General fees are based on the number of credit hours for which the student has reg-

istered. Out-of-state students pay an additional fee per credit hour.

## Additional Expenses

The following additional expenses may apply, depending upon the program of study:

**BOOKS:** All students are expected to purchase the textbooks for their respective programs. The cost of books will vary according to classes taken.

**TOOLS:** The College furnishes major equipment items for instruction; however, in many programs or courses students must furnish additional hand tools and equipment.

**UNIFORMS AND OTHER SPECIAL EQUIPMENT:** Several programs require students to furnish uniforms and special safety clothing.

For a current schedule of fees and further information, contact the Student Services Office.

## Payment of Fees

All enrolled students must make arrangements at the time of registration to pay all applicable fees. A student is officially registered and allowed to attend classes when all fees have been satisfied.

## REFUND POLICY

Students choosing to drop or withdraw from a course or courses must notify the College in writing using the drop-and-add or withdrawal form. The fee refund for voluntary withdrawal from a class, when applicable, will be processed only after the student files a College drop-and-add or withdrawal form with the Student Services Office.

The College will refund students' assessed fees, with the exception of the late registration fee, on a schedule computed as follows for a regular semester:

From registration to end of first week of semester	100% refund
To end of second week of semester	75% refund
To end of third week of semester	50% refund
To end of fourth week of semester	25% refund
After fourth week of semester	No refund

The effective date for calculating the fee refund is the date of written notification on the drop-and-add form.

Certain other fees may be refundable. Further details are available from the Student Services Office.

All refunds will be issued by check and mailed to the address shown on the student's registration form.

Cancellation of credit courses by the College will result in total refund of fees collected for those courses.

## FINANCIAL AID

Indiana Vocational Technical College offers various types of financial aid to students who need assistance to continue their education. Students are encouraged to carefully survey the variety of financial aid options available. Students must be accepted for admission to the College in an eligible program. Full-time and part-time students may be eligible. Financial aid is available to eligible students regardless of age. The Financial Assistance Office will help with information concerning student aid programs.

Some aid programs are administered by the College Financial Assistance Office under the policies and guidelines established by the state and federal governments; other programs are administered directly by a state or federal agency or outside organization. A few programs may be available on a regional basis only. Eligibility for most financial aid at Ivy Tech is based upon the student's demonstrated financial need. To qualify for any form of financial aid the student must complete either the Financial Aid Form (FAF) or the Application for Federal Student Aid (AFSA) each year and meet additional eligibility requirements (i.e., citizenship or permanent resident status, draft compliance, satisfactory academic progress). Additional information concerning federal, state and college financial aid is available in the financial aid brochure.

## Grants and Scholarships

Following are the various forms of aid available to Ivy Tech students.

### Pell Grants

Pell Grants represent the largest federal student assistance program for Ivy Tech students. Since the grant is based on the student's need, enrollment status, and cost of education at Ivy Tech, the amount may vary from semester to semester. To apply, the student should file the Application for Federal Student Aid or the College Scholarship Service Financial Aid Form available at any Ivy Tech Financial Assistance Office. The Pell Grant applicant will receive a copy of the Student Aid Report in the mail. The Student Aid Report must be presented to the Financial Assistance Office before or at the time the student enrolls in order to determine the amount of the grant.

## Supplemental Educational Opportunity Grant (SEOG)

SEOG is a federally funded student aid program which enables colleges to make grants to financially needy students to assist in the payment of educational costs. Applicants must file the Application for Federal Student Aid or the Financial Aid Form to establish eligibility. Since the amount of SEOG funds allocated to the College by the federal government is limited, awards vary each year.

## Hoosier Scholar Program

The State Student Assistance Commission of Indiana may award from one to three scholarships per high school, based on the size of the graduating class. Candidates are nominated by their high schools. The Hoosier Scholarship is a one-time, nonrenewable merit award in the amount of \$500 for one academic year.

## Higher Education Award Program (HEA)

Residents of Indiana may apply for Higher Education Awards (formerly called State Grants). Applicants must file the Financial Aid Form by March 1 preceding their enrollment for the following fall semester. Awards are based on demonstrated financial need. Recipients of HEA awards must be enrolled full-time each semester in order to be eligible to receive the grant.

## Lilly Endowment Educational Awards

Lilly Endowment Educational Awards are intended to help meet remaining financial need after federal and state dollars are applied. Applicants must file the Financial Aid Forms by March 1 preceding the enrollment for the following fall semester. Recipients of Lilly awards must be enrolled full-time each semester in order to be eligible to receive the grant.

## Ivy Tech and Foundation Scholarships

Many Ivy Tech regions award scholarships provided by the Ivy Tech Foundation and local civic and service organizations. Students should contact the regional Financial Assistance Office for details concerning availability of these scholarships.

## Ivy Tech Grant Programs

Ivy Tech provides an extensive grant program. Each Ivy Tech Regional Center has a fee remission grant fund for students with special needs arising from unusual circumstances. Fee remissions are available under five separate programs:

Ivy Tech Part-time	new students' grants awarded to first-time students enrolling in 1-5 credit hours.
Statutory Fee Remissions	provided to certain groups of students such as children of Disabled Veterans or orphans of deceased police and firefighters as determined by the Indiana Legislature.
Out-of-State Fee Remissions	may be available in certain cases to deserving students who are residents of other states but live in counties which are contiguous to Ivy Tech locations in Indiana.

## EMPLOYMENT AND LOANS

### Federal College Work Study Program

The federally funded College Work Study Program provides part-time employment to students who need financial assistance. Job assignments may be within the College or in public non-profit agencies in the community. The student is required to submit the AFSA or the FAF to the Financial Assistance Office, which will coordinate the job placement, taking into consideration the amount of the student's financial need, the student's class schedule, and the student's family or personal obligations. The starting hourly rate will be at least the federal minimum wage. Employment may consist of, but is not limited to, secretarial and clerical office work, maintenance or custodial work, duties in the Learning Resource Center (LRC), or work as lab assistants. Where possible, students are offered work-study assignments in areas related to their career objectives.

### State of Indiana Summer Work-Study Program

Ivy Tech participates with the State Student Assistance Commission of Indiana in the administration of a state-funded Summer Work-Study program for full-time financial aid students who are residents of Indiana. The purpose of this program is to increase employment opportunities in order to meet the remaining financial needs of students who have received state-funded grants and scholarships.

### Stafford Loans

Students who attend classes on at least a half-time basis may borrow up to \$2,625 per year from private lenders, such as commercial banks, savings and loan associations, or credit unions. The Federal government determines the interest rate on a Stafford loan. The



federal government pays the interest on the loan to the lender during the time the student is in school, provided the borrower has met certain criteria set by the federal government for the interest subsidy.

Students begin repayment six months after graduation or reduction of class load to fewer than six credit hours. Applications for Stafford Loans may be obtained from the student's hometown bank, savings and loan association, credit union, or other financial institution. The regional Financial Assistance Office must complete a portion of the loan application and approve it before it can be forwarded to the lender for processing. Loan counseling and testing are required before applications are processed.

### **Parent Loan for Undergraduate Students (PLUS)/SLS**

The PLUS/SLS program is intended to assist students and parents in financing education when all other types of financial assistance have been denied or exhausted. Parents of dependent undergraduate students may be eligible to borrow a maximum of \$4,000 in addition to the \$2,625 that the student may be eligible to borrow under the Stafford Loan Program. Repayment begins within thirty to sixty days after the loan is made. The federal government does not pay an interest subsidy on this loan.

### **Veterans' Benefits**

Students who served in the armed forces may be eligible for veterans' benefits. The Veterans Administration, and, in many instances, the Department of Defense, determine eligibility for veterans.

The amount of monthly educational allowance will depend on (1) enrollment status and (2) individual entitlement of each veteran.

The veteran should meet with the Veteran Affairs Coordinator at the campus of his or her choice at the earliest possible date. The veteran is responsible for attending classes and making reasonable progress toward an education objective.

### **Selected Reserve Educational Assistance Program**

Members of the U.S. Army Reserve, Naval Reserve, Air Force Reserve, Marine Corps Reserve, Army National Guard or Air National Guard may be eligible for benefits under Chapter 106 of the VA Regulations. Eligible students should contact any of Ivy Tech's Student Services Offices for additional information and applications.

### **Child of Disabled Veteran (CDV) Benefits**

Children of deceased or disabled veterans may be eligible for veterans' benefits. Students should contact the Ivy Tech regional Student Services Office for further information and assistance in applying for benefits.

Indiana residents who are the children of deceased or disabled veterans, or of veterans awarded the Purple Heart, may be eligible for a fee waiver at Ivy Tech if the parent's death, disability, or Purple Heart award occurred as a result of military service during wartime. Inquiry concerning this benefit may be made at the Ivy Tech regional Student Services Office.

## **OTHER SOURCES OF FINANCIAL ASSISTANCE**

### **Police and Fire Fighters' Orphans Benefits**

Children of deceased, regularly paid, law enforcement officers and fire fighters are eligible for a fee waiver if the parent's death occurred in the line of duty. The fee waiver is granted only to full-time students under the age of 23. Certification from the appropriate agency must be presented to the College in order to obtain the fee waiver.

### **Vocational Rehabilitation**

Students with disabilities that may be considered handicaps to employment may qualify for benefits through the Indiana Rehabilitation Services Board. The local office of the Division of Vocational Rehabilitation (DVR) establishes the conditions of eligibility and awards assistance, based on individual need. The DVR expects students to apply for the Pell Grant and other forms of financial aid through the school. However, if these resources are not sufficient to meet their needs, the DVR may provide additional funding. Further information is available from the local DVR counselor.

### **Job Training Partnership Act (JTPA)**

Students from economically disadvantaged backgrounds may be able to obtain assistance in acquiring vocational training or in upgrading occupational skills through the Job Training Partnership Act as implemented in October 1983. For further information, the student should contact the local Private Industry Council (PIC) Office.

### **Trade Readjustment (TRA)**

The Trade Readjustment Act provides full tuition and fees, books, and supplies to eligible students. Students

should check with their local Department of Employment and Training Office to determine eligibility.

### **Employer Funded Education**

Many employers are willing to fund courses taken at Ivy Tech in full or in part when the training offered relates to the employee's job responsibilities. Interested students should contact their employers to determine if such an arrangement can be made.

### **Industry—Union Training Funds**

Many unions have training funds available for members. Interested students should contact their union regarding availability of training funds for use at Ivy Tech.

## **APPLICATION PROCEDURES FOR FINANCIAL AID**

Application forms are available in the Financial Assistance Office at all Ivy Tech regional locations. Because application procedures, deadlines, eligibility regulations, and refund policies vary with different types of student aid programs, interested students are encouraged to contact the Financial Assistance Office at their earliest opportunity. Students should allow from six to eight weeks processing time for most financial aid programs although students are encouraged to apply for assistance at any time. The fall semester marks the beginning of the financial aid award year.

## **APPEALS—FINANCIAL ASSISTANCE**

The following steps are recommended to the student who feels that he or she has received unfair treatment in the financial assistance process:

1. Schedule a personal conference with the regional Financial Assistance Manager to discuss and resolve the issue.
2. If Step 1 is unsatisfactory, schedule a consultation with the regional Director of Student Services.
3. If Step 2 is unsatisfactory, schedule a conference with the Student Status Committee. This committee will make a recommendation to the regional Vice President/Dean to resolve the issue.

## **STUDENT RECORDS**

Ivy Tech maintains an educational record for each student who is, or has been, enrolled at Ivy Tech. In accordance with the Family Educational Rights and Privacy Act of 1974, as amended, the following student rights

are covered by the Act and afforded to all students at Ivy Tech:

1. The right to inspect and review information contained in the student's educational records.
2. The right to challenge the contents of their educational records.
3. The right to a hearing if the outcome of the challenge is unsatisfactory.
4. The right to submit an explanatory statement for inclusion in the educational record if the outcome of the hearing is unsatisfactory.
5. The right to prevent disclosure, with certain exceptions, of personally identifiable information.
6. The right to secure a copy of the institutional policy.
7. The right to file complaints with the Department of Education concerning alleged failures by Ivy Tech to comply with the provisions of the Act.

Each of these rights, with any limitations or exceptions, is explained in the institutional policy statement, a copy of which may be obtained in the Student Services Office.

At the discretion of College officials, Directory Information may be provided in accordance with the provisions of the Act without the written consent of the student unless the student requests, in writing, that such information not be disclosed (see below). The items listed below are designated as Directory Information and may be released for any purpose at the discretion of Ivy Tech unless a request for nondisclosure is on file:

- Category I. Name, address, telephone number, dates of attendance.
- Category II. Previous institution(s) attended, major field of study, awards, honors, degree conferred.
- Category III. Past and present participation in officially recognized sports and activities, physical factors of athletes (height and weight), date and place of birth.

Students may request the withholding of Directory Information by notifying the Registrar's Office in writing, specifying the categories to be withheld, within ten (10) calendar days from the first scheduled day of the term. Ivy Tech will honor the request for one term only; therefore, the student must file the request on a term basis. The student should carefully consider the consequences of any decision to withhold any category of Directory Information. Regardless of the effect upon the student, Ivy Tech assumes no liability for honoring a student's request that such information be withheld. Failure on the part of a student to request the withholding of specific categories of Directory Information indicates the student's approval of disclosure.

In addition, student records are held in security by the College. Transcripts on file with the College from high schools and other institutions of higher education cannot be released by Ivy Tech. A student needing a transcript from high school or another college should request it directly from that institution.

The Registrar's Office will assist students wishing to see and review their academic records and student files. Any questions concerning the student's rights and responsibilities under the Family Educational Rights and Privacy Act should be referred to the Student Services Office.

## DEPENDENCY PROVISION

Ivy Tech reserves the right, as allowed under the Federal Educational Rights and Privacy Act of 1974, to disclose educational records or components thereof, *without written consent* to parents of dependent students as defined according to the Internal Revenue Code of 1954, Section 154 (as amended). However, *All Ivy Tech students will be assumed to be "independent."* A certified copy of the parents' most recent Federal Income Tax Form establishing the student's dependency status shall be required before any educational records or components thereof will be released to the parent of any student.

## ACADEMIC GRADING

The academic grading system has both grades and status codes. Grades reflect the quality of performance and level of competency achieved by students who complete a course. Formal grades will be assigned at the end of each enrollment period. Instructors determine and assign grades and status based on objective appraisal and evaluation of students' performances. Semester grade reports are sent to each student. The semester grade report is not sent to students who still owe fees.

In all courses, the quality of the student's work is important in determining the grade earned. For some courses, quantity of work, speed of work, or both, are considered in determining the grade. Class participation may also be considered by instructors in awarding grades.

In certain instances, a status code will appear on the student's record in place of a grade. Status represents a condition to which no letter grade can be assigned.

### Grades

The quality of student performance or competency level, as determined by the instructor at the completion of a

course, is indicated by a letter grade of A, B, C, D, or F. Each designation has a numerical value per credit hour, referred to as "quality points." The meaning and quality point value per credit hour of each letter grade are shown in the table below:

Status		Grade Points Per Credit
A	Excellent	4
B	Good	3
C	Average	2
D	Poor, Below average	1
F	Failure	0

## Status Codes

Status codes describe the state or condition of a course appearing on the student's record that has not received a grade. Status code indications carry no grade points. The types of status codes and the symbols used to indicate them are shown below:

Status	
I	Incomplete
AU	Audit
S	Satisfactory
U	Unsatisfactory
T	Transfer
V	Verified Competency
NW	No-Show Withdrawal
W	Withdrawal

These non-grades are used for the following reasons:

### I—Incomplete

"I" designations are received by students who have actively pursued a course and are doing passing work at the end of the course, but who have not completed the final examination and/or other specific course assignments.

To remove an "I" designation, a student must meet with the instructor to make arrangements to complete the course work. The instructor must submit the grade within 30 calendar days after the end of the term in which the student received the "I" designation.

### AU—Audit

Audit (AU) status indicates enrollment in a course for no grade or credit. The fees for audited courses are the same as those for courses taken for credit. Audit status must be declared no later than the end of the first week of classes with approval of the Instructor or Program Chairperson.

### NW—No-Show Withdrawal

Instructors will authorize the Registrar to withdraw a student from any course for which the student did not



report for the first two weeks of the semester and failed to notify the instructor of intention to continue. This administrative action will be reflected on the official class list. No refund will be processed. A petition for a refund, with documentation for extenuating circumstances, can be filed at the Business Office.

Students can petition to be reinstated by receiving the approval of the instructor and completing the drop/add process.

## W—Withdrawal

A "W" status code will be used for student and academic withdrawals.

Student Withdrawal (W) is a terminal status, referring to voluntary student withdrawal by a student beginning at the start of the third week of the course up to the end of the week marking the completion of 75 percent of the course. To be considered officially withdrawn from a course, the student must file a withdrawal form at the Student Services Office.

After 75 percent of the term has elapsed, a student may withdraw (with the same result as indicated above) only if documented extenuating circumstances are submitted to, and approved by, the Chief Administrative Officer or his/her designee. The "W" status code designation will be entered on the students' academic records.

Instructors may also recommend that a student receive a "W" status code for student nonparticipation in class or student disciplinary reasons, with final approval from the Program Chairperson.

## S—Satisfactory

The "S" indicates satisfactory completion of course work in situations where either a status of satisfactory or unsatisfactory (pass/fail) has been arranged by prior agreement. Requests for this type of grading—S/U—must be declared at time of registration.

## U—Unsatisfactory

The "U" indicates unsatisfactory completion of course work in situations where either a status of satisfactory or unsatisfactory (pass/fail) has been arranged by prior agreement. Requests for this type of grading—S/U—can only be made for non-program related courses and must be declared at time of registration. The "U" differs from an "F" in that quality points are not computed.

## T—Transfer

Transfer (T) status indicates acceptance by Ivy Tech of credit earned at other accredited postsecondary institutions. Transfer credit for grades of A, B, or C can be

granted upon evaluation for equivalency and relevance. The final authority for T credit rests with the Chief Academic Officer.

## V—Verified Competency

The "V" indicates satisfactory completion of course work in situations such as test-out, credit for experience or training, College Level Examination Program (CLEP), and so forth. Credit gained through this method may be used to satisfy degree requirements. This status is approved by the Chief Academic Officer upon recommendation of faculty advisor, following completion of necessary verification and documentation of competency.

## CREDIT HOURS

Credit is described in semester hours (the number of credits taken per semester). The number of credits is determined by the demands of the course, course work and by the number of contact hours—the hours actually spent in the classroom or laboratory.

### Credit Hours/Load

A credit hour represents one hour of lecture, two hours of laboratory or three hours of clinical instruction per week for the semester. A three credit hour lecture course, for example, meets 48 hours during the semester (3 X 16).

An average full-time class load per semester in most Ivy Tech programs consists of 12-15 credit hours. To take a class load of more than 17 credit hours, a student must have the approval of the Chief Academic Officer or his/her designee.

## Enrollment Status

Enrollment status is determined by registered total semester credits:

Full-time student	12 or more credits per semester
3/4 time	9—11 credits per semester
1/2 time	6—8 credits per semester
Less than 1/2 time	1—5 credits per semester

A first-year student, by definition, is one who has completed fewer than 30 semester credit hours; a second-year student is one who has completed 30 or more semester credit hours.

## Quality Points

Quality points are numerical values indicating the quality of student performance in credit courses: A = 4; B = 3; C = 2; D = 1; F = 0. The quality points earned for a course

equal the quality point value times the number of credits. A student who earns an "A" in a 4-credit course earns 16 quality points: the quality point value (4) X the number of credits (4) = total quality points (16).

## Grade Point Averages

The Grade Point Average (GPA) is a numerical indication of the student's performance in all courses earning quality points. The GPA is obtained by dividing the number of quality points earned by the number of credits earned. The term and cumulative GPA, calculated to three decimal places, will appear on each grade report.

Under extenuating circumstances, a student may petition the Academic Status Committee to exclude up to fifteen (15) semester hours of course work from the cumulative GPA calculation. Course statistics that are excluded from the cumulative GPA calculation as a result of a petition will not be counted as earned and cannot be used to satisfy program requirements for degree declared students. Please see the Student Services Office for additional information.

## Improving a Grade

Students, with the approval of faculty advisors, may attempt to improve D or F grades by repeating courses (allowable once in most programs). Financial Aid recipients, however, should review their situations carefully since payment for repeated courses can be disallowed. Permanent student records contain complete files on all activity. The student's grade point average will reflect the highest grade earned.

## Dean's List

The Dean's List, prepared and published each semester, gives recognition to students who achieve a minimum 3.50 grade point average or higher with no F's while earning 12 or more credits during the semester.

## Grade Reports

Final grades are mailed to the address on the registration form. Grade reports are not sent if there are outstanding financial obligations to the College.

## Attendance

Regular attendance is expected at scheduled class meetings or other activities assigned as part of a course of instruction. Attendance records are kept by instructors.

If personal circumstances may occasionally make it impossible to attend scheduled classes and activities, the College expects the student to confer with instructors in advance when possible. Instructors can offer students the option of making up the material missed.

When circumstances are unforeseen, students should consult with instructors to arrange make-up work, if possible.

Absences may be considered by instructors in awarding grades and considering involuntary withdrawal. Students who must interrupt their Ivy Tech training to fulfill Reserve and National Guard annual tour requirements should present official military orders to their instructors prior to departure for duty. Students are not excused from completion of the course work and should make arrangements with their instructors to complete all work.

## STANDARDS OF PROGRESS

Students who have declared a certificate or degree objective and who have fifteen (15) or more cumulative credit hours attempted must maintain a 2.00 minimum cumulative grade point average (GPA) to be considered in satisfactory academic standing. Students receiving financial aid must demonstrate satisfactory progress toward completion of a program within a specified time frame, based on their enrollment status. Also, students must successfully complete the minimum number of credit hours required for that status each semester. All students are expected to maintain a cumulative 2.00 GPA for graduation eligibility. Questions on maintaining standards of progress and academic standing should be addressed to the Student Services Office.

## Special Problems

The Director of Student Services is available to help with special problems, granting exceptions, and filing grievances (see Student Grievances). Special problems, exceptions, and grievances are ultimately the responsibility of the Chief Administrative Officer of the region and designated staff and committees.

## GRADUATION

The Associate in Science degree, the Associate in Applied Science degree, or Technical Certificate is awarded by the College to students who meet graduation and certification eligibility requirements. Graduation ceremonies are held at least once a year. Graduating students are charged a fee to cover the cost of the ceremonial cap and gown.

A student is considered eligible for graduation when the requirements for graduation and certification have been fulfilled at the selected program level. Each student entering the final semester of training prior to graduation will complete an Application for Graduation form. The application will be certified by the student's pro-



gram advisor and forwarded to the Student Services Office, where the appropriate diploma will be prepared.

To graduate with an Associate in Science degree, an Associate in Applied Science degree, or a Technical Certificate, the student must:

1. attain a minimum grade point average of 2.0 in the required technical and general education courses;
2. successfully complete all courses within certification requirements with a minimum grade point average of 2.0;
3. earn the last 15 credits as a regular student of Ivy Tech, rather than by test-out or other means of advanced placement;
4. successfully complete the Ivy Tech certification requirements;
5. satisfy all financial obligations to the College.

## STUDENT SUPPORT SERVICES

### Career Counseling

The Student Services Office in each region offers counseling to all interested students. Students may obtain individual counseling and/or assessment to assist them in identifying their abilities or occupational interests. Counseling and assessments are also helpful in developing realistic education and career plans and occupational outlook data. Students are encouraged to seek assistance in selecting an occupation and the necessary training by contacting the Student Services Office.

In addition to the counseling program offered by the Student Services Office, the College utilizes a faculty advisor system. On admission, each degree student is assigned a faculty advisor, whose purpose is to:

1. assist the student in course selection and program planning;
2. guide the student in meeting the requirements for graduation as prescribed by the College;
3. ensure that appropriate technical and general education electives are included in the chosen course of study.

### Placement

Candidates for graduation who desire job placement assistance should contact the Job Placement Office, which will:

1. advise candidates of the College placement services;
2. distribute registration forms for the placement service;

3. provide occupational information, including employment trends and local and state occupational outlook data;
4. assist the registered candidate in preparing a packet of credentials for use in finding a job. The packet may include:
  - a. a resume of the candidate's education and employment experience;
  - b. personal letters of recommendation verifying the student's employability;
5. create folders containing original copies of the candidate's credentials for all registered candidates;
6. prepare copies of credentials released by the candidates for referral to prospective employers. Alumni may update their credentials whenever they wish to use the placement service.

Students registered with the Job Placement Office will be informed of employment opportunities known to the regional Placement Offices.

Employers who register with the Job Placement Office are given the names of all qualified candidates without regard to sex, race, age, national origin, or handicap. Registered students are eligible for interviews with appropriate prospective employers.

### Library

The library at each region is a Learning Resource Center (LRC). New acquisitions are carefully selected to augment the needs of the students in the technologies offered and for the skills advancement program.

Special features of the LRC include career exploration materials, interlibrary loans, periodicals both general and technical in focus, leisure reading offerings, and audio-visual materials and equipment. Basic Skills Advancement centers are located in the LRCs or a related area.

### College Bookstore

The College maintains a bookstore in each regional institute where students may buy textbooks and supplies. College sweaters, jackets, souvenirs, and other items may also be available for purchase.

## STUDENT ORGANIZATIONS

### Organizations and Activities

The College recognizes the educational, recreational, and social values of student organizations and extra-curricular activities which complement the institution's

academic programs. Students are encouraged to participate in any or all phases of the student activities program as long as participation does not interfere with studies.

All student organizations operate under the policies and guidelines set for the College by the State Board of Trustees. Approval by the Student Senate and the administration is required of all student organizations seeking to make use of the College facilities. All approved organizations must be open for membership to all eligible candidates and must make available to the Student Senate all records of officers, membership, and financial transactions.

## **Student Senate**

Students in each region are provided opportunities to participate in student government through membership in the Student Senate. The Student Senate is the representative governing body of the students. Student Senate representatives are elected or selected according to the bylaws of each regional Student Senate constitution and serve as stated in those bylaws.

The student body membership may consist of representatives of the first-year class, the second-year class, each program area and an advisor as established in the bylaws.

The Student Senate was established by students to encourage participation in student government and to promote College spirit and recognition. The Student Senate exercises the authority, unless otherwise delegated, to legislate on student matters, subject to the approval of appropriate College administrative offices.

The constitutions of all student organizations must be approved by a quorum of the Student Senate, consisting of a simple majority of the total membership and one staff advisor, or as otherwise stated in the bylaws.

The functions of the Student Senate include:

1. communication of bona fide concerns of the student body and suggestions for improvement to appropriate College officials;
2. approval of those student organizations deemed beneficial to student life and worthy of being a part of the College;
3. assurance that copies of the constitution, bylaws, and statement of purpose and objectives of each recognized student organization are on file in the Student Services Office;
4. referral of student grievances concerning disciplinary matters or student status to the Committee on Student Status; referral of other types of student grievances to appropriate College officials;

5. planning and conducting of appropriate extracurricular student activities;
6. submission of student activity budgets for review and approval by the regional administration.

## **Intramural Sports**

College sports activities consist of intramural sports sponsored by the Student Senate. Leagues can be formed when student interest justifies their organization. All sports activities of the College must be approved and sponsored by the Student Senate and the administration.

## **Class Organizations**

The primary purpose of class organizations is to promote classwide social activities and sports functions. Each first- and second-year class may elect a class president, vice-president, secretary-treasurer, class reporter, and representatives-at-large for the Student Senate. Class organizations must be sponsored by the Student Senate.

## **Clubs**

Students wishing to organize hobby, social, or special interest clubs should submit proposals to the Student Senate, which will determine whether sufficient interest exists to form or continue a club. The Student Senate is authorized to charter the club upon approval by the administration. Each club must have the following elected officers: president, vice-president, secretary-treasurer, club reporter, and a Student Senate representative. Each club must also have a staff advisor.

## **Social Activities**

All group activities of the College must be approved and sponsored by the Student Senate and the administration. Classes, clubs, and other groups should plan and conduct social activities pertaining specifically to their members. The Student Senate organizes and conducts social activities and gatherings in which all students and their guests may participate.

## **Professional and Trade Societies**

Student chapters of various professional and trade societies will be formed in the same manner as other student organizations and are subject to the same requirements.

## **Housing**

While Ivy Tech is a commuter campus and does not operate residence halls, the Student Services Office may be able to answer questions concerning housing.

Ivy Tech accepts no responsibility for locating, approving, or supervising local student housing.

## Student Parking

As a part of registration, students may need to register their motor vehicles. Some campuses will require a parking sticker from the cashier's office. A special permit is required to park in the handicapped zone. Stickers are to be displayed in the vehicle while it is parked on campus, and students are expected to park only in designated student parking areas. Vehicles improperly parked in areas reserved for the handicapped, visitors, or others may be towed away at the owner's expense.

## Student Insurance

For students registered in credit courses at Ivy Tech, the College provides insurance in a designated amount for injuries sustained while participating in College-sponsored activities. The activity must take place on College premises or on any premises designated by the College. Students are also covered while traveling to and from College-sponsored activities as a member of a group under College supervision.

It is the student's responsibility to report injuries promptly to the instructor or to the Student Services Office.

The insurance is for a specified minimum amount of coverage. It is not intended to replace insurance coverage students may already have. It is suggested that students review their own coverage.

The Master Policy for this insurance is issued to Indiana Vocational Technical College and is on file at the office of the Director of Personnel Services at College Central Offices. The description of the hazards insured, benefits, and exclusions is controlled by the Master Policy. Should students have questions, they may contact the regional Student Services Office.

An insurance company offers health insurance to Ivy Tech students. Insurance coverage is purchased directly from the insurance company by the student. Application forms and brochures explaining coverage and rates are available through Student Services during course registration periods. Coverages and rates are subject to change.

## Emergency Closing of Campus

It is possible that severe weather conditions or other emergencies will make it necessary to close a campus. Each region has designated local radio stations that will announce information on closings.

# STUDENT RIGHTS AND RESPONSIBILITIES

## Student Conduct

The reputation of Ivy Tech and the community depends, in large part, upon the behavior of its students. Students enrolled at the College are expected to conduct themselves in a mature, dignified and honorable manner.

Students are subject to College jurisdiction while enrolled at Ivy Tech. The College reserves the right to take disciplinary action against any student whose conduct, in the opinion of Ivy Tech representatives, has not been in the best interests of the student, other students, or the College.

All Ivy Tech students are expected to abide by the following College rules of conduct.

"Student" as used refers to a student, a group of students, a prospective student or a group of prospective students.

## College Rules

1. **ALCOHOLIC BEVERAGES:** In compliance with Indiana state law, consuming, being under the influence of, or possessing intoxicating beverages on College property is not permitted.
2. **ILLEGAL USE OF DRUGS:** In compliance with Indiana state law, being under the influence of, use of, possession of, or distributing illegal drugs is not permitted.
3. **SMOKING:** In compliance with Indiana state law, Ivy Tech buildings are classified as "non-smoking" facilities. Smoking is permitted only in designated areas.
4. **ASSEMBLY:** College policy states that assembly in a manner that obstructs the free movement of others about the campus, inhibits the free and normal use of the College buildings and facilities, or prevents or obstructs the normal operation of the College is not permitted.
5. **SIGNS:** Students may erect signs on campus or display signs or posters on designated bulletin boards after receiving written approval from the appropriate College official.
6. **SOLICITATION OF FUNDS:** College policy requires that individuals or organizations seeking the use of campus facilities or scheduling activities to solicit funds must first obtain written approval from the appropriate College official.
7. **ARMS/DEADLY WEAPONS:** In compliance with Indiana state law, possession of firearms (except those possessed by police officers) is



prohibited on College property or at any College-sponsored activity held elsewhere.

8. **CHEATING:** Cheating on papers or tests is a violation of College rules.
9. **COUNTERFEITING AND ALTERING:** College policy states that copying or altering in any manner any record, document, or identification form used or maintained by the College is not permitted.
10. **THEFT OF PROPERTY:** Theft of personal or College property is a violation of College rules.
11. **VANDALISM:** The destruction or mutilation of Ivy Tech books, magazines, equipment, or buildings is a violation of College rules.
12. **USE OF COLLEGE FACILITIES:** Students are permitted on campus during normal published Ivy Tech hours and at other times established in the College calendar. Students wishing to utilize College facilities at other times must request permission from the appropriate College official.
13. **FINANCIAL RESPONSIBILITY:** Students are expected to pay all fees, fines, or loans in a timely manner.
14. **MOTOR VEHICLES:** Students are expected to comply with parking regulations. Handicapped parking spaces and visitors' areas are reserved for those purposes and vehicles improperly parked in those areas may be ticketed or towed at the owner's expense.
15. **HARASSMENT AND/OR INTIMIDATION:** This is defined as conduct causing alarm, or creating a risk by threatening to commit crimes against persons or their property or making unwelcome sexual advances or requests for sexual favors. This also covers harassment or intimidation of persons involved in a disciplinary hearing and of persons in authority who are in the process of discharging their responsibilities.

## VIOLATIONS

The College maintains jurisdiction over violations of any College rules. This includes those listed above and any others communicated to students.

Students and Ivy Tech employees are protected from those who might violate laws and ordinances. Violators shall be subject to prosecution by the appropriate law enforcement officials.

Anyone found in violation of Ivy Tech regulations shall be subject to disciplinary action by the College through due process procedures for student conduct violations. Copies of the student conduct regulations will be made available in written form to all students no later than the first day of instruction.

The following information is provided so that students, faculty, and staff have a set of guidelines that they can follow when incidents occur that challenge College rules and regulations. It should be noted that, whenever possible, an effort needs to be made to solve conflicts or violations in an informal manner. All parties concerned should not assume that all conflicts or violations must result in formal hearings or proceedings.

## DUE PROCESS

Students have the right of due process. Students are provided an opportunity to appeal any disciplinary decision and are required to sign a waiver if they choose to waive the right to appeal. The basic process in discipline cases is as follows: entitlement to notice of charges, notice of possible penalty, and opportunity to explain a defense to some authority.

## DUE PROCESS PROCEDURE

1. The student shall be notified by an appropriate College official that he or she is accused of violating a regulation.
  2. The student shall be notified in writing that he or she may elect one of three courses of action:
    - a. The student may admit the alleged violation and request in writing that the administrative officer take whatever action seems appropriate. A signed waiver which waives the right to appeal is required;
    - b. The student may admit the alleged violation and request a hearing before the Student Status Committee;
    - c. The student may deny the alleged violation, in which case the administrative officer shall refer him/her to the Student Status Committee.
- Prior to the hearing, the student will be entitled to:
- i. Written notification of the time and place of the hearing. The student shall be given the notice at least 48 hours in advance;
  - ii. A written statement of the charges of sufficient particularity to enable the student to prepare a defense;
  - iii. Written notification of the names of the witness(es) directly responsible for reporting the alleged violation, or, if there are no such witness(es), written notification of how the alleged violation was reported.
3. The student shall be entitled to appear in person and present a defense to the Student Status Com-

mittee and may call witnesses in his/her behalf. If the student elects not to appear, the hearing shall be held in his/her absence.

4. The student shall be entitled to be accompanied by counsel.
5. The student and/or counsel shall be entitled to question the Student Status Committee and the witnesses.
6. The student shall not be required to testify against himself or herself.
7. The student shall be entitled to an expeditious hearing of the case.
8. The student shall be entitled to an explanation of any decision rendered against him or her.

## STUDENT STATUS COMMITTEE

A Student Status Committee has been created to deal with all cases relating to disciplinary status of students. Grievances of students as to disciplinary status may be heard by the Student Status Committee.

The Committee will be composed of at least six members, including two full-time instructors and two administrative staff persons. The additional two members will be students designated by the Student Government Association or the campus Chief Administrative Officer or her/his designee. The Committee's review and subsequent disposition of formal complaint will begin no later than thirty days after receipt of a written complaint. Staff legal counsel advice will be available to the Committee when needed.

A record will be kept by the Student Status Committee and filed in the student's academic file upon resolution of each complaint.

The campus Chief Administrative Officer will review the Committee's recommendations and will confirm or modify them. This decision will be final.

Notice to the grievant will include:

1. Notice of actions and meetings at all stages of this formal complaint procedure will be provided to the grievant;
2. An opportunity to be heard will be provided;
3. An opportunity to question witnesses at hearings as appropriate will be arranged;
4. The student may have a representative present when presenting facts or being questioned about the complaint during any formal hearing proceedings.

## DISCIPLINARY ACTION

A student who violates the rules and regulations of the College may be subject to any of the following disciplinary actions:

1. Verbal reprimand;
2. Restitution for damages;
3. Restriction of privileges;
4. Withdrawal from a course, program or the College;
5. Suspension from the College;
6. Dismissal from the College.

Instructors, through the Dean/Director of Instructional Affairs or other administrators through the Director of Student Services, can recommend to the Student Status Committee that a student be withdrawn from a course, program, or the College, for disciplinary reasons. Students recommended for dismissal will be notified by their advisors and will be given an opportunity to be heard by the Student Status Committee before such action is final. Disciplinary dismissals from the College will be final only after review by the Student Status Committee and at the discretion of the Chief Administrative Officer of the campus. Students dismissed for disciplinary reasons will not be entitled to refunds.

## STUDENT GRIEVANCE POLICY

1. Bring your complaint to the attention of your instructor or your advisor.
2. Your advisor or instructor will schedule a conference within two weeks of the notice of your complaint.
3. If you feel that such a conference with your advisor would be futile because of the advisor's involvement in the grievance, you may elect to request a conference with a department head, division chair or the Dean/Director of Instructional Affairs, as deemed appropriate. This conference will also be held within two weeks of the notice of your complaint.
4. If the complaint is not resolved to your satisfaction through the informal procedure, you may submit the grievance in writing to the Director of Student Services. Exception: if the complaint is filed against the Director of Student Services, his/her responsibility in these procedures shall be assumed by the Dean/Director of Instructional Affairs.
5. The formal complaint brought by a student must:
  - a. Clearly state the facts giving rise to the grievance;

- b. The remedy sought by the complaining party;
  - c. The complaint must be signed and dated.
6. The written complaint shall be filed in the office of the Chief Administrative Officer and forwarded to the chairperson of the Student Status Committee unless the Chief Administrative Officer decides to resolve the complaint in another way which will be explained to the grievant in writing.
7. The Student Status Committee is responsible for review and disposition of any such complaint forwarded to it.
8. The disposition of a formal grievance procedure may be one of the following.
- a. Refuse further action—if no prima facie case has been made by the complainant the matter will be refused in writing to said grievant with reasons for this action. The grievant may resubmit the complaint once within 30 days providing there is additional information to be submitted. If not, the decision is final.
  - b. Fact-finding and mediation—the Committee itself can engage in investigation of the allegation as an attempt to mediate with parties a mutually agreeable resolution of the matter. A signed agreement should be generated summarizing the issue and resolution, if agreement is reached.
  - c. Referral—the complaint may be referred to a more appropriate forum for action.
    - i. If a discrimination complaint, it should be referred to the Affirmative Action Officer to be initially processed under the College Affirmative Action Plan. If a hearing is necessary, the Affirmative Action Officer may return the matter, with advice, to the Student Status Committee for a formal hearing.
    - ii. If the Committee believes a policy or procedure of the College is being legitimately challenged, it will refer the grievance to the Chief Administrative Officer of the campus with an explanation of its concern.
  - d. Remand complaint—if it appears no legitimate informal attempt to resolve the matter has taken place and it appears such discussion might lead to resolution of the complaint, then referral of the matter to the student advisor or other appropriate staff person for review and discussion with the student would be in order. If resolved, a report to the Student Status Committee will be made by such staff person. The Student Status Committee will review the agreement reached with the student to assure that in fact there was mutual agreement and understanding.
  - e. Hold formal hearing—if a grievance cannot be resolved utilizing the steps listed above, the committee may hold a formal hearing. If held, witnesses may be called, including the parties to the complaint. A recommendation will then be formulated and a report made to the Chief Administrative Officer of the campus of the suggested resolution of the matter.
- Further information regarding the due process procedure and the student grievance policy is available from the Director of Student Services.

## REINSTATEMENT

If a student is dismissed from any site/region of Indiana Vocational Technical College, that individual is dismissed from the College. After one calendar year, the individual may apply for reinstatement. The individual must begin the reinstatement process by informing the Director of Student Services at the site/region where the dismissal took place of her/his intentions. The appeal for reinstatement may be applied for at any site/region of Ivy Tech where the individual hopes to attend. The site/region Student Status Committee will act on the appeal within 30 days of its receipt. The recommendation of the Student Status Committee will be forwarded to the Chief Executive Officer of the site/region. That individual will render a judgement on the appeal. That judgement will be final.



# INSTRUCTIONAL PROGRAMS

In keeping with its mission and goals, the College serves persons with educational programs consistent with projected job requirements and personal interests. Ivy Tech programs complement secondary programs, four-year programs, and basic adult education programs. The purposes of Ivy Tech's programs are to develop competent workers for initial employment, to upgrade the skills of those already employed, and to provide a foundation of thinking and analytical skills to meet the requirements of society's expanding knowledge base.

Ivy Tech programs are designed to meet the needs of students, accommodating those who wish to enroll in a few classes as well as those who prefer a full degree program. A few classes in a planned sequence comprise a Career Development Certificate. Degree programs culminate in an Associate in Science degree, an Associate in Applied Science degree, or a Technical Certificate. The College's 47 degree programs are offered in four divisions:

- Business, Office and Information Systems Technologies
- Visual Communications Technologies
- Human Services and Health Technologies
- Applied Science and Technologies

Short-term training is available in selected credit courses, in sequences of credit courses, and in custom-designed credit courses for local businesses and industries. Also available are contract training programs and non-credit institutional activities, such as seminars, workshops, and conferences.

Ivy Tech offers basic skills instruction for students who request or require academic support to assist them in successful completion of a regular program of study. Also, certain basic skills courses are designed to prepare students for the GED examination.

## Associate in Science (AS) Degree Programs

Associate in Science Degree Programs prepare students for technical career opportunities and also enable students who have an interest and ability to transfer a predetermined number of Ivy Tech credits to cooperating four-year institutions. The degree requires the satisfactory completion of a planned program of study. Students enrolling in the program may take the General Education courses with a recognized four-year institution.

The College awards the Associate in Science Degree in Accounting Technology, Administrative Office Technology, Computer Information Systems, Marketing Technology, Graphic Design, Nursing, Early Childhood Development, Automatic Manufacturing Technology and Drafting/CAD Technology at selected Ivy Tech sites. Students should contact Regional Instructional Offices to receive information about additional transfer-oriented programs at Ivy Tech locations.

## Associate in Applied Science (AAS) Degree Programs

Associate in Applied Science Degree Programs prepare students for careers, career changes, and career

advancement at the technician or technology level. The programs offer training in recognized technologies and specialties with emphasis on analysis, synthesis, and evaluation. The program content, which is approximately 75 percent technical and 25 percent general education, provides both depth and breadth. The general education courses, offered in the areas of communications, humanities, mathematics, life and physical sciences, and social sciences, equip students with the problem solving, technical, and social skills they need to compete successfully in the job market. Other courses, determined regionally, provide flexibility to meet the specific needs of local employers.

## Technical Certificate (TC) Programs

Technical Certificate Programs provide training for specific occupations. Each program contains a sequence of required courses in a recognized specialty within one of the technologies taught at the College. The program content, which includes general education instruction, is designed to develop competency in the technical skills in that specialty.

## Short-Term Programs

Ivy Tech provides short-term programs for individuals who desire to develop competencies in a specific area.

These programs are fewer than 30 semester credits in length. Instruction is delivered through regular courses and specifically designed courses. Many of these courses are based on a sequence of learning experiences determined by a certifying state or national association or organization. Completion of certain short-term programs qualifies a student to sit for a certification exam in a specific area. The number and types of short-term programs vary among the Ivy Tech locations.

## **Business and Industry Training Programs**

Ivy Tech offers specialized training services for business and industry. Directors of Business and Industry Training are responsible for the development of custom-designed programs and services that meet the training needs of local businesses. Through its offices statewide, the College provides training services in which Ivy Tech consults, designs, produces, conducts, and evaluates courses specifically prepared to satisfy employer needs on a one-time or on-going basis. The Directors work with business and industry, trade unions, and community economic development groups to assess training needs and to deliver training when and where it is needed, often in-plant.

The services provided by the Business and Industry Training programs help ensure that the skills of employees of Indiana firms are current with changing technology. Instruction that best meets a company's specific needs is delivered through methods that might include regular courses, short-term courses, seminars, conferences and the use of mobile computer labs.

As the third largest of Indiana's public institutions of higher education, with more than 25 years of experience in vocational and technical instruction, Ivy Tech has been and continues to be a leader in promoting Indiana's economic development by providing comprehensive training services to Indiana businesses and industries.

For detailed information, contact the Director of Business and Industry training at the Ivy Tech regional center near you.

## **Basic Skills Advancement Program**

Ivy Tech offers Basic Skills instruction and services designed to prepare people with skills and attitudes that meet the General Education course entry requirements. In addition, the Basic Skills Advancement Program offers assistance to help students get from "where they are" to "where they want to be." Ivy Tech Basic Skills courses are non-degree credit courses, meaning the credit awarded does not count toward a degree/graduation.

Services provided through the program include diagnostic testing and assessment, financial aid counseling, career counseling, placement services and instruction. The need for these services may be identified at the time of admission; however, a student may utilize any or all services upon encountering academic difficulty during a course of study. Professional Basic Skills Advancement instructors and laboratory technicians provide supplemental instruction in math, communications, sciences, GED preparation, and study skills. The delivery of instruction may be a Basic Skills Advancement course in a classroom setting, it may be offered to students one-on-one as tutorial assistance, or as a self-paced study, sometimes using interactive video technology, in the Basic Skills Centers. For further information about the College's Basic Skills Advancement Program, the student should contact either the Student Services Office or the Basic Skills Center.

## **Programs**

On the following pages are the current listings of credit programs offered by Ivy Tech. Contact the center nearest you for information concerning program offerings in your area.



# COURSE NUMBERING SYSTEM

Courses are identified by a three-letter prefix that designates the program area, followed by three numbers for course identification. Courses numbered in the 100 series are first year and 200 series numbers are second year courses. Courses numbered 001 to 099 indicate Basic Skills Advancement Courses.

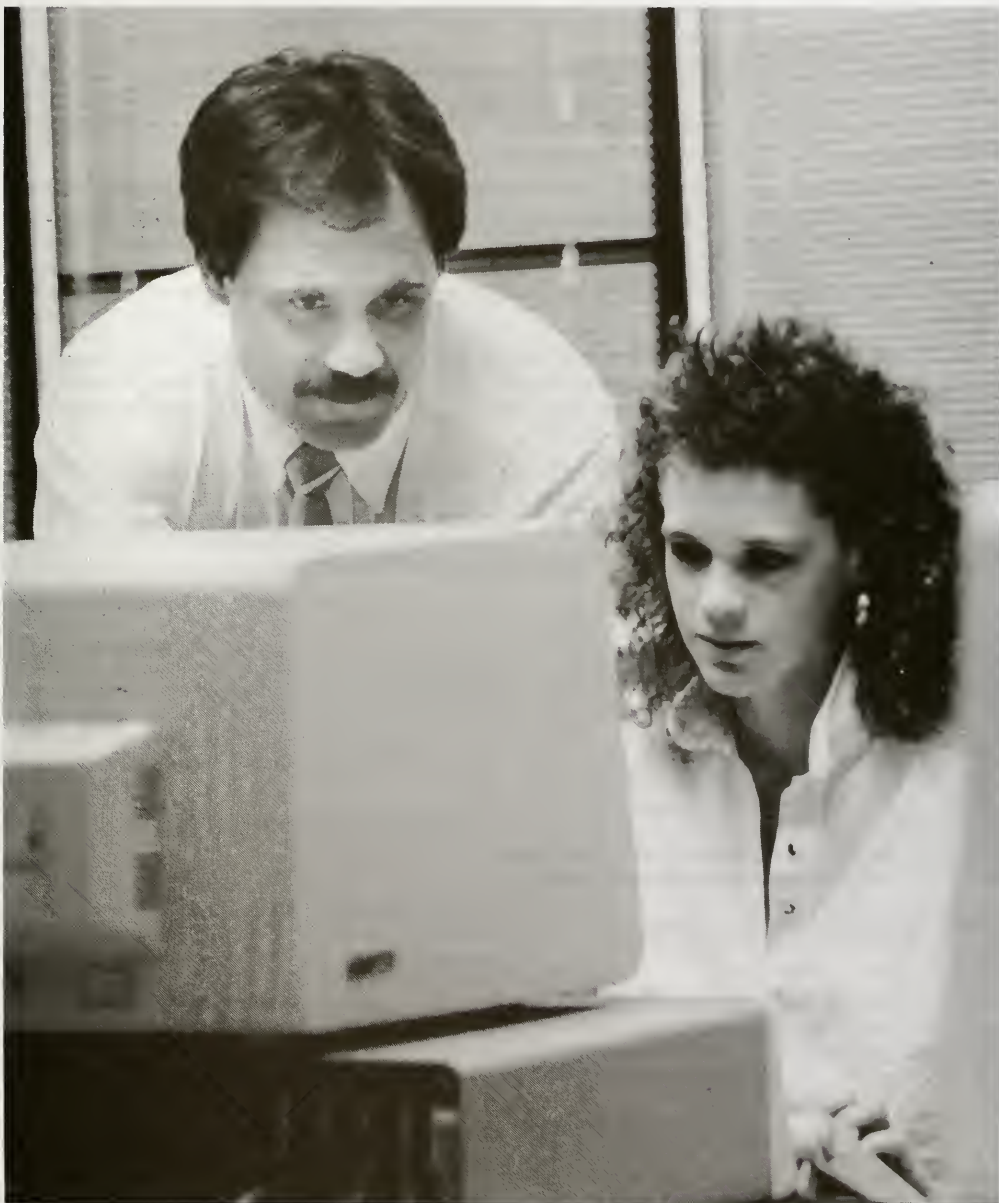
Prefix	Program Title
Division of Business, Office and Information Systems Technologies	
ACC	Accounting Technology
AOT	Administrative Office Technology
BUS	Business Management
CIS	Computer Information Systems
CUL	Culinary Arts Technology
DSM	Distribution Management
HMM	Hotel/Motel Management
IST	Industrial Supervision Technology
MKT	Marketing Technology
LEG	Paralegal Technology
SPC	Statistical Process Control Technology
Division of Visual Communications Technologies	
COV	Commercial Video Technology
ART	Graphic Design
CIP	Commercial Photography
GRA	Graphic Media Production Technology
INT	Interior Design Technology
Division of Human Services and Health Technologies	
CHD	Child Development
ECD	Early Childhood Development
DEN	Dental Assistant
FST	Food Service Technology
HST	Human Services Technology
MEA	Medical Assistant
MLT	Medical Laboratory Technician
MHR	Mental Health Rehabilitation Technology
NUR	Nursing, Associate in Science in
PNU	Nursing, Practical
RAD	Radiologic Technology
RES	Respiratory Care
SUR	Surgical Technology
Division of Applied Sciences and Technologies	
AFS	Applied Fire Science Technology
AMT	Automated Manufacturing Technology
ABR	Automotive Body Repair Technology
AST	Automotive Service Technology
BAR	Barbering Technology
BCT	Building Construction Technology
CIJ	College/Industry Job Title Program
DCT	Drafting/CAD Technology
ELT	Electronics Technology
ENV	Environmental Care Technology

Prefix	Program Title
HEA	Heating/Air Conditioning/Refrigeration Technology
ILT	Industrial Laboratory Technology
IMT	Industrial Maintenance Technology
MTT	Machine Tool Technology
PMT	Manufacturing Processes, Plastics Technology
MIN	Mining Operations Technology
RVT	Recreational Vehicle Service Technology
WLD	Welding Technology

Division of General Education and Support Services

BSA	Basic Skills Advancement
ENG	Communications
HUM	Humanities
MAT	Mathematics
SCI	Life and Physical Sciences
SOC	Social Sciences
IND	Business and Industry

# **DIVISION OF BUSINESS, OFFICE AND INFORMATION SYSTEMS TECHNOLOGIES**



*Career opportunities in business and offices are expanding rapidly for those who have the technical skills to meet the demands of the automated office. Programs offered through Ivy Tech's Division of Business, Office, and Information Systems Technologies reflect the needs of Indiana businesses. The student is advised to contact the nearest center concerning specific course and program offerings.*

## ACCOUNTING TECHNOLOGY

The Accounting Technology program develops an understanding of accounting principles, business law, communications, business equipment, and related areas of study in the field. Instruction is offered in computerized accounting systems. Technical skills in financial accounting, cost accounting, and tax preparation are emphasized.

Typical duties in accounting include maintaining journals and ledgers, processing banking transactions, billing, preparing payroll, maintaining inventory records, purchasing, processing expense reports, preparing financial statements, and analyzing managerial reports. Position titles may include junior or staff accountant, junior auditor, cost accounting clerk, bookkeeper, payroll clerk, inventory clerk, accounts receivable clerk, accounts payable clerk, and financial management trainee.

The Division of Business, Office and Information Systems Technologies offers an Accounting Technology program that leads to an Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. Associate in Science is offered in Indianapolis and Elkhart.

Programs are offered in Anderson, Bloomington, Columbus, Elkhart, Evansville, Fort Wayne, Gary, Hammond, Indianapolis, Kokomo, Lafayette, Lawrenceburg, Logansport, Madison, Marion, Muncie, Richmond, Sellersburg, South Bend, Terre Haute, Valparaiso, and Warsaw.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (27 Credits)

Prefix	No.	Title	Semester Credits
ACC	101	Accounting Principles I	3
ACC	102	Accounting Principles II	3
BUS	102	Business Law	3
ACC	105	Income Tax I	3
ACC	201	Intermediate Accounting I	3
ACC	202	Intermediate Accounting II	3
ACC	203	Cost Accounting I	3
ACC	213	Electronic Spreadsheets in Business	3
CIS	101	Introduction to Microcomputers	3

### General Education Courses (15 Credits)

Prefix	No.	Title	
MAT	XXX	(Regionally Determined)	3
ENG	101	English Composition	3
ENG	103	Speech	3
SOC	101	Human Relations or	
SOC	102	Psychology or	
SOC	104	Sociology (Regionally Determined)	3
SOC	XXX	(Regionally Determined)	3

### Regional Courses (22 Credits)

	<u>22</u>
Total Credits	64



## ACCOUNTING TECHNOLOGY COURSE DESCRIPTIONS

### ACC 101—ACCOUNTING PRINCIPLES I

#### 3 Credits

Introduces the fundamental principles, techniques, and tools of accounting. The mechanics of the accounting cycle include collecting, recording, summarizing, analyzing, and reporting of information pertaining to service and mercantile enterprises. Internal control, deferred charges, notes and interest, valuation of receivables, payrolls, inventories, and plant assets are also covered.

### ACC 102—ACCOUNTING PRINCIPLES II

#### 3 Credits

Continues the study of accounting to include partnership and corporate accounting systems. Financial statements including the cash flow statement are prepared and analyzed. Topics covered include long-term liabilities and investments. Cost, managerial, branch and nonprofit accounting techniques may be introduced.

### ACC 105—INCOME TAX I

#### 3 Credits

Offers an overview of federal income tax law for individuals including taxable income, capital gains and losses, adjustments, standard and itemized deductions, tax credits and appropriate tax forms. Also introduced are tax concepts needed by a sole proprietorship.

### ACC 106—PAYROLL ACCOUNTING

#### 3 Credits

Covers the calculating and reporting of payroll including various federal and state withholding taxes, employer payroll taxes, typical insurance and other arrangements affecting the preparation of payroll registers and employees' earnings records. May include computerized payroll.

### ACC 107—ACCOUNTING FOR RECORDKEEPING

#### 3 Credits

This course is for non-accounting majors, with special emphasis on the trade professions. The cash basis of recordkeeping for materials, payroll, depreciation and financial statements will be covered. Also included will be an introduction to the operation of petty cash funds, basic cash budgeting, and controlling cash through the use of a checkbook. The following may be covered: financial ratios, construction accounting methods, and computing customer estimates.

### ACC 108—CAREER ESSENTIALS OF ACCOUNTING

#### 3 Credits

This course is an introduction to the basic principles of

accounting as utilized in a variety of office settings. The course includes principles of debit and credit, double entry bookkeeping, use of journals and analyzing transactions. Uses of ledgers, posting procedures, petty cash, banking procedures, payroll, depreciation, work sheets, balance sheets, and income statements are covered as well.

### ACC 109—PERSONAL FINANCE

#### 3 Credits

Examines the process of setting and achieving financial goals. Emphasizes financial management, budgeting for current expenses, projected cash flow and management of short and long-term credit. Includes use of insurance to reduce risks and vehicles for saving and investing.

### ACC 111—ACCOUNTING PRINCIPLES LAB I

#### 1 Credit

Presents a series of planned accounting learning problems and activities to accompany concepts and theories included in an Accounting Principles course. The touch-method of numeric input on a calculator may be introduced, and some computerized problems may be included.

### ACC 112—ACCOUNTING PRINCIPLES LAB II

#### 1 Credit

This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in the Accounting Principles II course. Computerized problems may be used.

### ACC 113—INCOME TAX ACCOUNTING LAB

#### 1 Credit

This course presents a series of planned accounting learning problems and activities to accompany concepts and theories included in the Income Tax course. Computerized problems may be used.

### ACC 114—PAYROLL ACCOUNTING LAB

#### 1 Credit

Presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in the Payroll Accounting course. Computerized problems may be used.

### ACC 118—FINANCIAL CONCEPTS FOR ACCOUNTING

#### 3 Credits

This course develops math skills needed in the busi-

ness field and serves as a basis for course work in business. It includes the study of business applications using rational numbers, algebraic equations, time value of money concepts, and basic statistics.

### **ACC 201—INTERMEDIATE ACCOUNTING I**

#### **3 Credits**

Studies accounting principles and applications at an intermediate level pertaining to the income statement and balance sheet, cash and short-term investments, receivables, inventories, plant assets and intangible assets. Included are analysis of bad debts, inventory valuation, repairs and maintenance, depreciation of plant assets and present value applications.

### **ACC 202—INTERMEDIATE ACCOUNTING II**

#### **3 Credits**

Continues studies of Intermediate Accounting I and includes long-term investments, current and contingent liabilities, long-term debt, stockholders equity, special accounting problems and analysis, statement of cash flows and financial statement analysis. Also included are corporate capital and treasury stock transactions, dividends, earnings per share, accounting for income taxes, corrections of errors and creation of financial statements from incomplete records.

### **ACC 203—COST ACCOUNTING I**

#### **3 Credits**

Examines the manufacturing process in relation to the accumulation of specific cost of manufactured products. Various cost accounting report forms, material, labor control, and allocation of manufacturing costs to jobs and departments are studied.

### **ACC 204—COST ACCOUNTING II**

#### **3 Credits**

Continuation of Cost Accounting I. Studies the master or comprehensive budget, flexible budgeting and capital budgeting. Tools for decision making and analysis are emphasized. Human resource accounting is introduced.

### **ACC 205—SEMINAR IN ACCOUNTING**

#### **1 Credit**

Allows accounting students to pursue (a) specific area(s) of interest at a more advanced level.

### **ACC 206—MANAGERIAL ACCOUNTING**

#### **3 Credits**

This course provides an understanding of accounting records and management decision making, with topics including internal accounting records and quantitative business analysis.

### **ACC 207—ACCOUNTING FOR GOVERNMENT AND NONPROFIT ENTITIES**

#### **3 Credits**

This course will emphasize the similarities and differences between government and nonprofit and commercial accounting methods and procedures. The student will be exposed to the basic fund accounting cycle for the general fund and other special funds.

### **ACC 208—INCOME TAX II**

#### **3 Credits**

Continues Income Tax I. Studies procedures and problems pertaining to federal and state income tax laws for partnerships and corporations. Includes a review and a more in-depth study of concepts related to proprietorships covered in Income Tax I.

### **ACC 209—AUDITING**

#### **3 Credits**

Covers public accounting organization and operation, including internal control, internal and external auditing, verification and testing of the balance sheet and operating accounts and the auditor's report of opinion on the financial statements.

### **ACC 210—MONEY & BANKING**

#### **3 Credits**

Monetary and banking theories as they relate to present-day domestic and international problems. Topics include banking operations, price changes, international monetary relationships, and application of monetary and fiscal policy.

### **ACC 212—BUSINESS FINANCE**

#### **3 Credits**

Basic tools and techniques of financial analysis and management are introduced as are sources of financial and economic theory as applied to business finance. Included are conceptual materials related to valuation, capital structure formulation and risk-return considerations.

### **ACC 213—ELECTRONIC SPREADSHEETS IN BUSINESS**

#### **3 Credits**

Provides instruction in the use of all modules of a spreadsheet software package including spreadsheet, graphics, and database operations, applying these modules to business problems. The student will be instructed with an input-processing-output orientation and will develop user skills in quick, efficient business problem solving using electronic spreadsheet technology.

### **ACC 214—CONSUMER & COMMERCIAL CREDIT**

4 Credits

Theory, principles, and practice of consumer and commercial credit related to business activity and economic impact are explored. Examines managerial functions of collecting and controlling credit to consumers and business. Emphasizes credit plans, credit and sales, short-term and intermediate credit, and legal aspects of credit. Intended for retail, service, wholesale, and manufacturing firms extending credit to clients.

### **ACC 215—CREDIT PROCEDURES & COLLECTIONS**

3 Credits

Examines credit as a means of extending purchasing power i.e., increased buying power, immediate use of money, merchandise, or services and delayed payment. Concepts of credit, principles and methods of credit administration involving individuals and businesses are examined. Includes information on credit policy, credit control, credit decision-making, and legal remedies.

### **ACC 216—CREDIT MANAGEMENT**

3 Credits

Functions of acquiring cycle of credit and management function of control cycle are explored in seminar/project setting. Combines lectures, discussions, individual research and projects with written and oral presentation of findings and results.

### **ACC 217—INTERMEDIATE ACCOUNTING LAB I**

1 Credit

This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in Intermediate Accounting I. Computerized problems may be used.

### **ACC 218—INTERMEDIATE ACCOUNTING LAB II**

1 Credit

This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in Intermediate Accounting II. Computerized problems may be used.

### **ACC 219—COST ACCOUNTING LAB**

1 Credit

This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in Cost Accounting I. Computerized problems may be used.

### **ACC 220—SPECIAL APPLICATIONS ACCOUNTING LAB I**

1 Credit

This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in an accounting course. Computerized problems may be used.

### **ACC 221—SPECIAL APPLICATIONS ACCOUNTING LAB II**

1 Credit

This course presents a series of planned advanced accounting learning problems and activities designed to accompany concepts and theories included in an accounting course. Computerized problems may be used.

### **ACC 222—ACCOUNTING SOFTWARE APPLICATIONS**

2 Credits

Accounting problems will be solved using software similar to software currently being used in business. Planned learning activities will include installation, operation and analysis of an accounting software package.

### **ACC 223—ADVANCED TOPICS IN ACCOUNTING**

2 Credits

Discusses topics of current interest in accounting. Attention is given to special interest projects for students in accounting. Field trips, guest speakers, audiovisual activities, and seminars may be utilized.

### **ACC 224—CONSTRUCTION BIDDING**

3 Credits

Examines bidding procedures, contract documents, contracts, bonds, and insurance. It also follows a format of describing the materials and how the different types may affect the bid, installation procedures as they may affect the bid, the unit of measure of the work, estimating the quantity of materials, and the relationship of the specifications.

### **ACC 281-293—SPECIAL TOPICS IN ACCOUNTING TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

**ACC 298—FIELD STUDY/COOPERATIVE  
EDUCATION**

3 Credits

The student will work at a job site that is specifically related to his/her career objectives. The course will be a field project within the framework of actual work experience in accounting.

**ACC 299—ACCOUNTING PRACTITIONERS'  
REVIEW SEMINAR**

3 Credits

Prepares individual candidates for the Indiana State

Board for Accountancy Accounting Practitioner's Examination. Currently, this examination consists of the practice sections of the Uniform Certified Public Accountant (C.P.A.) Examination, which is given on the first Wednesday and Thursday afternoons in May and November. Because of the broad subject area covered and the constant revision of areas tested, as well as the difficulty of the examination, the emphasis of this course is to prepare the candidate to have a solid understanding of the central concepts of accounting and the ability to apply these concepts in unusual situations.



# ADMINISTRATIVE OFFICE TECHNOLOGY

The Administrative Office Technology program prepares students for an office environment which is becoming automated and will approach the electronic office predicted for the future. Students develop not only the basic, traditional office skills, but also skills using technology such as computer hardware, software, and other electronic equipment.

The Administrative Office Technology program is designed to accommodate students with different levels of training and experiences. Courses are offered which provide initial, advanced, and refresher education and which assist individuals in achieving professional recognition and career progression. The Associate in Applied Science degree program prepares graduates as administrative office workers and provides opportunities for specialized training in such areas as legal secretarial, medical secretarial, office management, stenography, and information/word processing. Students who complete the recommended sequence of courses are eligible to take the Administrative/Information Processing Specialist (AIPS) or the Certified Professional Secretary (CPS) exam administered by the Institute for Certifying Secretaries of the Professional Secretaries International Association (PSI). Technical Certificates are also available in specialized areas. Associate in Science is offered in Gary and Indianapolis.

Programs are offered in Anderson, Bloomington, Columbus, Elkhart, Evansville, Fort Wayne, Gary, Hammond, Indianapolis, Kokomo, Lafayette, Lawrenceburg, Logansport, Madison, Marion, Muncie, Richmond, Sellersburg, South Bend, Tell City, Terre Haute, Valparaiso, and Warsaw.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (33 Credits)

Prefix	No.	Title	Semester Credits
AOT	101	Basic Formatting	3
AOT	102	Document Management	3
AOT	103	Information/Word Processing Concepts	3
AOT	104	Document Production	3
AOT	201	Specialized Formatting/Transcription	3
AOT	202	Information/Word Processing Applications	3
AOT	203	Principles of Office Management	3
AOT	204	Administrative Office Procedures	3
AOT	205	Business English for Information Processing	3
ACC	101	Accounting Principles I	3
CIS	101	Introduction to Microcomputers	3

### General Education Courses (15 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
MAT	107	Math of Finance	3
SOC	XXX	(Regionally Determined)	3
SOC	XXX	(Regionally Determined)	3

### Regional Courses (18 Credits)

	<u>18</u>
Total Credits	66

# ADMINISTRATIVE OFFICE TECHNOLOGY COURSE DESCRIPTIONS

## **AOT 100—KEYBOARDING**

3 Credits

An introduction to keyboarding. Emphasis is on mastery of the keyboard and developing basic keyboarding skills.

## **AOT 101—BASIC FORMATTING**

3 Credits

This course develops keyboarding competencies. Emphasis is placed on increasing keyboarding speed, improving accuracy, developing formatting skills, applying communication skills, and learning document production skills.

## **AOT 102—DOCUMENT MANAGEMENT**

3 Credits

Designed to acquaint students with alphabetic, numeric, geographic, and subject filing procedures. Exposure to the latest equipment, automation and the newer methods of managing, storing and retrieving records. Role of the file worker and place of document management within the overall business enterprise is emphasized.

## **AOT 103—INFORMATION/WORD PROCESSING CONCEPTS**

3 Credits

Introduction to the concept of information/word processing systems. Offers hands-on experience in the operation of word processing systems.

## **AOT 104—DOCUMENT PRODUCTION**

3 Credits

Provides experience producing documents found in business offices. Major focus is on productivity and excellence in document production. Also emphasizes composition skills and the application of communication skills.

## **AOT 106—REFRESHER SHORTHAND**

1 Credit

Designed to bring old, unused shorthand skills to an employable level. Taught in a lab setting emphasizing three areas of skill development: speed, theory, and transcription.

## **AOT 107—REFRESHER TYPEWRITING**

1 Credit

Designed to bring old, unused typing skills to an

employable level. Taught in a lab with four areas of skill development: speed and accuracy, business letters, tables and tabulations, and reports.

## **AOT 108—SHORTHAND/NOTETAKING I**

3 Credits

Introductory course emphasizing basic theory, brief forms, and speed in reading from notes and the textbook. Focuses on the correct way to write shorthand. Dictation with emphasis placed on writing and transcription techniques.

## **AOT 109—PROFESSIONAL DEVELOPMENT**

2 Credits

Enables students to analyze and improve themselves in terms of posture, weight control, personal hygiene, grooming, wardrobe, personality, communication, and job application skills for success in employment fields. Designed to foster greater self-esteem and to make a good first impression by being confident, poised, and well groomed. Includes resume and interviewing preparation.

## **AOT 110—KEYBOARDING SKILL DEVELOPMENT**

1 Credit

This course is designed to improve speed and accuracy through drills on the typewriter and/or personal computer.

## **AOT 111—SHORTHAND/NOTETAKING II**

3 Credits

Develops dictation, notereading, and transcription skills through drills and tests. Emphasizes speed, accuracy, and use of correct English. Reinforces and builds on principles and skills learned in Shorthand/Notetaking I.

## **AOT 112—DATA ENTRY**

3 Credits

Prepares for employment in data entry or related data processing positions in an up-to-date computerized business. Stresses basic keyboarding skills and experience with typical applications and a variety of data entry techniques.

## **AOT 113—OFFICE CALCULATING MACHINES**

1 Credit

Designed for the acquisition of competence on the 10-key electronic printing/display calculator. Competence on the desk calculator and familiarity with the types of

business problems commonly solved on them are essential elements of the course.

#### **AOT 114—INTRODUCTION TO TYPEWRITING**

2 Credits

An introduction to keyboarding and typewriting. Emphasizes keyboard mastery and the ability to type easy copy and perform simple typing exercises. May be taught on the PC, to include basic file manipulation of the Disk Operating System (DOS).

#### **AOT 115—INTRODUCTION TO MICROCOMPUTER KEYBOARDING**

2 Credits

A course for beginners in keyboarding on the micro-computer. Covers the development of fundamentals: touch keyboarding techniques, familiarization with keyboard including numbers, introduction of major parts of computer, and skill measurement.

#### **AOT 116—BUSINESS COMMUNICATIONS**

3 Credits

Development of communication skills for use in business and industry. Special attention is given to business correspondence and to problems in oral and written communication.

#### **AOT 201—SPECIALIZED FORMATTING/TRANSCRIPTION**

3 Credits

Production techniques which include correspondence, business forms, manuscripts, tabulation, and secretarial projects. Correct use of grammar, spelling, and letter formats are stressed, along with a high degree of productivity and skill. Transcription from machine dictation and introduction to products, services, and terminology encountered in business organizations.

#### **AOT 202—INFORMATION/WORD PROCESSING APPLICATIONS**

3 Credits

Knowledge acquired from Information/Word Processing Concepts will be further enhanced as more sophisticated features of a word processing package are learned and applied.

#### **AOT 203—PRINCIPLES OF OFFICE MANAGEMENT**

3 Credits

Covers a broad range of topics including: hiring practices, supervision, motivation, decision-making, time, space, and environment management. The course also

includes: basic management principles, problem solving techniques, selecting, orienting, and supervising human resources, motivating workers, labor/management relations, office personnel problems and practices, managing office systems and improving productivity.

#### **AOT 204—ADMINISTRATIVE OFFICE PROCEDURES**

3 Credits

Emphasizes skills, techniques and attitudes businesses desire in office personnel. Provides experience applying skills and knowledge gained in previous technical courses. Identifies professional standards of conduct and appearance necessary to successfully work in the business environment.

#### **AOT 205—BUSINESS ENGLISH FOR INFORMATION PROCESSING**

3 Credits

Basic grammar, punctuation, spelling, proofreading, and other language skills needed in word processing.

#### **AOT 206—SHORTHAND/NOTETAKING III**

3 Credits

Review of fundamentals learned in Shorthand/Notetaking I & II. Continued emphasis on skill in taking new matter dictation with more emphasis on transcribing mailable letters. Essentials of good English principles are stressed.

#### **AOT 207—INTEGRATED OFFICE AUTOMATION**

3 Credits

Designed to be the culmination of the student's word processing studies. After a complete overview of word processing principles and applications, the student will obtain experience integrating this knowledge with various software packages to solve problems in the electronic office. Development of critical thinking skills is emphasized.

#### **AOT 208—MICROCOMPUTER/WORD PROCESSING**

2 Credits

Covers production techniques including typing, formatting, editing, and printing variable output, and use of the electronic dictionary. Includes production applications such as merging letters with mailing lists, math computations during document creation, sorting files, printout of newsletters, and other multiple-column formats.

**AOT 209—ADVANCED MICROCOMPUTER/WORD PROCESSING**

2 Credits

Techniques for maximizing the operating speed and convenience of a word processing software, including installation with a RAM disk and print spooler. Editing macro files with M-Edit and Notebook. Use of ready-made macros, multiple-column formats, and configuration and operation of software with various types of printers. Electronic grammar checking and other supplementary programs are integrated with the software.

**AOT 210—OFFICE SYSTEMS AND TECHNOLOGY MANAGEMENT**

3 Credits

Advanced course designed to acquaint the student with the management of office systems, technology, and procedures. Includes the improvement of productivity through technology and systems; optimization of personnel resources; systems selection, configuration, design, and implementation; and procedures development.

**AOT 211—WORD PROCESSING FILES MANAGEMENT**

3 Credits

Designing and managing the file system -- creating files, adding, revising and deleting files. Designed to demonstrate how to create, use, change, and update files on a word processing system or personal computer using a database software.

**AOT 212—MICROCOMPUTER WORD PROCESSING**

3 Credits

Deals with business application uses of word processing software on microcomputer work stations. Practical applications in the use of a microcomputer word processing software.

**AOT 213—ADVANCED INFORMATION/WORD PROCESSING APPLICATIONS**

3 Credits

Introduction to a second software or equipment. Develops the ability to transfer word processing skills.

**AOT 214—DESKTOP PUBLISHING**

3 Credits

Provides computer skills in the production of camera-ready materials through electronic publishing.

**AOT 215—LEGAL TERMINOLOGY/PRACTICE**

3 Credits

Provides basic understanding of the secretarial duties and responsibilities pertinent to the legal profession. Presents ethics of law and professional conduct. Includes laboratory experience.

**AOT 216—PRACTICUM/INTERNSHIP**

3 Credits

Students gain on-the-job experience while earning college credits toward an associate degree.

**AOT 217—MACHINE TRANSCRIPTION, MEDICAL I**

2 Credits

Provides a basic understanding of the techniques of dictation and transcription used by medical assistants.

**AOT 224—ADVANCED DESKTOP PUBLISHING**

3 Credits

Provides "hands-on" experience and familiarizes students with specific advanced design and layout techniques and practical applications of desktop publishing.

**AOT 281-293—SPECIAL TOPICS IN ADMINISTRATIVE OFFICE TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# BUSINESS MANAGEMENT

The Business Management program develops the ability to learn and apply the managerial skills needed for self employment and/or for general administrative positions in a variety of business environments. These business environments may include retailing/wholesaling, manufacturing, agriculture, service industries and office administration.

A two-year program, requiring 64 credits, leads to an Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. Programs are offered in Valparaiso, Columbus, Evansville, Fort Wayne, Indianapolis, Lafayette, Muncie, Richmond, Sellersburg, South Bend, Terre Haute and Madison. Selected courses may be offered at other locations.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (37 Credits)

Prefix	No.	Title	Semester Credits
BUS	101	Introduction to Business	3
BUS	102	Business Law	3
BUS	201	Principles of Management	3
BUS	202	Human Resource Management	3
BUS	203	Entrepreneurship	3
BUS	204	Case Problems in Management	3
ACC	101	Accounting Principles I	3
IST	102	Techniques of Supervision I	3
MKT	101	Principles of Marketing	3
MKT	202	Logistics/Purchasing Control	3
XXX	XXX	Electives	7

### General Education Courses (21 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
ENG	103	Speech	3
MAT	101	Algebra I	3
SCI	XXX	Life and Physical Science Course	3
SOC	106	Principles of Macroeconomics or	
	107	Principles of Microeconomics	3
XXX	XXX	Social Science or Humanities Course	3

### Regional Courses (6 Credits)

	<u>6</u>
Total Credits	64

# BUSINESS MANAGEMENT COURSE DESCRIPTIONS

## **BUS 101—INTRODUCTION TO BUSINESS**

3 Credits

Examines our business system in relation to our economic society. Studies business ownership, organization principles and problems, management, control facilities, administration, and development practices of American business enterprises.

## **BUS 102—BUSINESS LAW**

3 Credits

Describes the judicial system and the nature and sources of laws affecting business. Studies contracts, sales, and negotiable instruments with emphasis on Uniform Commercial Code applications. Includes appropriate remedies for breach of contract and tort liabilities. Examines business structures and agency.

## **BUS 103—OFFICE ADMINISTRATION**

3 Credits

Covers broad areas of administrative office services and management, including office organization, site location, layout and environment, records management, systems control, and office communication services and devices.

## **BUS 104—INVESTMENT**

3 Credits

This course presents the basis of investing, with attention to the various ways in which investment vehicles operate.

## **BUS 107—TRANSPORTATION LAW**

3 Credits

Reviews judicial systems and regulatory agencies, regulatory acts, Motor Carrier Act-1980, Staggers Rail Act-1980, obligations, rights and liabilities, regulation of rates and rate-making agreements.

## **BUS 108—PERSONAL FINANCE**

3 Credits

Emphasizes management of individual financial resources for growth and maintenance of personal wealth. Covers home buying and mortgage financing, installment financing, life and health insurance, securities, commodities, and other investment opportunities.

## **BUS 201—PRINCIPLES OF MANAGEMENT**

3 Credits

Focuses on the functions of managers, including the

management of activities and personnel. Emphasis is placed on application of guidance principles in management work.

## **BUS 202—HUMAN RESOURCE MANAGEMENT**

3 Credits

Overview of the activities of a human resource manager with emphasis on employer-employee relations, job analysis and evaluation, salary administration, work measurement and standards, performance appraisal, and legal compliance.

## **BUS 203—ENTREPRENEURSHIP**

3 Credits

Explores business operations for the self-employed or as a manager employed in a small business enterprise.

## **BUS 204—CASE PROBLEMS IN MANAGEMENT**

3 Credits

Applies business concepts and principles to specific case studies or problems.

## **BUS 205—RISK MANAGEMENT**

3 Credits

Examines risks faced by business firms and considers ways of handling them. Covers property, liability, and personal losses, with attention to insurance contracts and their uses. Studies individual life, health, and pension insurance, public policy, government regulations, and social insurance programs.

## **BUS 207—INTRODUCTION TO INTERNATIONAL BUSINESS**

3 Credits

Provides an overview of the international environment within which business operates today. There will be an attempt to demonstrate the global relationships between business activities and how events in one part of the world can influence business decisions and activities in other parts of the world.

## **BUS 208—ORGANIZATIONAL BEHAVIOR**

3 Credits

Studies human behavior in organizations at the individual and group level, including the effect of organizational structure on behavior. Specific attention will be given to using organizational behavior concepts for developing and improving interpersonal skills.

**BUS 281-293—SPECIAL TOPICS IN BUSINESS  
MANAGEMENT TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# COMPUTER INFORMATION SYSTEMS

The Computer Information Systems curriculum, with specializations in computer programming and information/data management, is designed to provide the flexible and comprehensive training required by employers. The curriculum includes technical courses in computer information systems and related areas, general education, and regionally determined technical courses in each specialty area. Instruction includes both theoretical concepts and practical applications needed to produce graduates able to function in positions of responsibility.

Automated systems allow for the integration of several functionally related applications such as word processing, data base management, spreadsheets, programming, electronic mail systems, electronic filing, graphics generation, and telecommunications. These systems may be stand-alone, shared logic, distributed, or integrated. Demand for employees with computer and business skills is particularly high in small and medium-sized firms which create, transmit, and control information by using computer technology as a management tool.

The Associate in Applied Science degree program requires 63 credits for completion. Technical Certificates are also available in specialized areas. An Associate in Science degree transfer program is offered in Gary, Richmond, and Evansville. Programs are offered in Gary, Hammond, Valparaiso, Elkhart, South Bend, Warsaw, Fort Wayne, Lafayette, Kokomo, Logansport, Anderson, Muncie, Terre Haute, Indianapolis, Richmond, Bloomington, Columbus, Madison, Evansville and Sellersburg.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (24 Credits)

Prefix	No.	Title	Semester Credits
CIS	101	Introduction to Microcomputers	3
CIS	102	Data Processing Fundamentals	3
CIS	103	Logic and Documentation	3
CIS	107	Microcomputer Programming	3
CIS	202	Data Communications	3
CIS	203	Systems Analysis and Design	3
ACC	101	Accounting Principles I	3
BUS	101	Introduction to Business	3

### Specialty-Programming (18 Credits)

Prefix	No.	Title	
CIS	104	Introduction to COBOL Programming	3
CIS	105	Mini/Mainframe Operating Systems	3
CIS	204	Advanced COBOL Programming	3
*CIS	XXX		3
*CIS	XXX		3
*CIS	XXX		3

### Specialty-Microcomputer (18 Credits)

Prefix	No.	Title	
CIS	106	Microcomputer Operating Systems	3
CIS	208	Electronic Spreadsheets	3



**Specialty-Microcomputer (continued)**

Prefix	No.	Title	
*CIS	XXX		3
*CIS	XXX		3
*CIS	XXX		3
*CIS	XXX		3

**Student Electives (3 Credits)**

Prefix	No.	Title	
XXX	XXX		3

**General Education Courses (18 Credits)**

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
*SOC	XXX		3
*SOC	XXX/HUM		3
*SCI	XXX		3
Total Credits			63

\*Regionally Determined

## COMPUTER INFORMATION SYSTEMS COURSE DESCRIPTIONS

### CIS 101—INTRODUCTION TO MICROCOMPUTERS

3 Credits

Introduces the physical components and operation of microcomputers. Focuses on computer literacy, basic concepts of word processing, spreadsheet processing and database processing as examples of common microcomputer applications used in business.

### CIS 102—DATA PROCESSING FUNDAMENTALS

3 Credits

Introduction to data processing and programming, with emphasis on hands-on computer experience. Examines the role of data processing in an organization including: data processing applications, computer hardware and software, internal data representation, stored program concepts, systems and programming design, flowcharting, and data communications.

### CIS 103—LOGIC AND DOCUMENTATION

3 Credits

Presents structured techniques for the efficient solution

of business-related computer programming logic problems. Includes program flowcharting, pseudocoding, and hierarchy charts as a means of solving these problems. Documentation procedures include creating file layouts, print charts, program narratives, user documentation, and system flowcharts for these business problems.

### CIS 104—INTRODUCTION TO COBOL PROGRAMMING

3 Credits

An introduction to COBOL (Common Business Oriented Language) with emphasis on developing structured programming skills. Develops proficiency in applying the programming development cycle to elementary business problems.

### CIS 105—MINI/MAINFRAME OPERATING SYSTEMS

3 Credits

A study of computer operating systems, purposes, structure and various functions. Covers comprehensive

sets of language translators and service programs, operating under supervisory coordination of an integrated control program which form the total operating system of a computer.

### **CIS 106—MICROCOMPUTER OPERATING SYSTEMS**

3 Credits

Introduces the organization, structure, and functions of an operating system for a microcomputer. Presents student with operating system concepts such as commands, error messages, interrupts, function calls, device drivers, structure, files, and organization, with practical applications.

### **CIS 107—MICROCOMPUTER PROGRAMMING**

3 Credits

Introduces a structured microcomputer language. Concepts in input/output commands, arithmetic expressions, conditional control, iteration techniques, and subroutines are emphasized. Offers application opportunities for solving business problems.

### **CIS 108—PRACTICAL COMPUTER OPERATIONS**

3 Credits

Demonstrates workstation and minicomputer operations including peripheral devices. Information is given on entire data processing area including job responsibilities, standards and run manuals, message control functions, documentation and backup procedures.

### **CIS 109—UNIX V OPERATING SYSTEM**

3 Credits

Studies the UNIX V Operating System and its use as a powerful time-sharing operating system. Includes basic UNIX commands, use of the visual editor, the UNIX directory structure and file management with SHELL commands. Offers opportunities to apply skills and knowledge in a laboratory environment.

### **CIS 110—BASIC PROGRAMMING LANGUAGE**

3 Credits

Provides an introduction to the basic concepts of program design and programming using the BASIC programming language. BASIC is the primary language for use with microcomputers. Some topics included are basic arithmetic operations, accumulating and printing totals, comparing, array processing and interactive programming. This course offers students an opportunity to apply skills in a laboratory environment.

### **CIS 202—DATA COMMUNICATIONS**

3 Credits

Introduces the concepts of data communications in order

to build a foundation of knowledge upon which to add the new technologies as they are developed.

### **CIS 203—SYSTEMS ANALYSIS AND DESIGN**

3 Credits

Provides instruction in creating or modifying a system by gathering details, analyzing the data, designing the system by creating solutions, and implementing and maintaining the system.

### **CIS 204—ADVANCED COBOL PROGRAMMING**

3 Credits

Continues topics introduced in Introduction to COBOL with more logically complex business problems. Develops a higher level of COBOL proficiency as well as a greater familiarity with debugging techniques and the structured approach through class instruction and laboratory experience.

### **CIS 205—DATABASE DESIGN**

3 Credits

Introduces program applications in a database environment with emphasis on loading, modifying, and querying the database by means of a host language (COBOL). Discusses data structures; indexed and direct file organizations; models of data, including hierarchical, network, and relational; storage devices, data administration and analysis; design; and implementation.

### **CIS 206—SYSTEMS DEVELOPMENT WITH HIGH-LEVEL TOOLS**

3 Credits

Analyzes established and evolving methodologies for the development of business-oriented computer information systems. Develops competencies in techniques that apply modern software tools to generate applications directly, without requiring detailed and highly technical program writing efforts.

### **CIS 207—MICROCOMPUTER DATABASE MANAGEMENT SYSTEMS**

3 Credits

Presents an overview of relational, hierarchical and network database models with emphasis on microcomputer relational database management systems (DBMS). Using database software, students have hands-on experience creating, modifying, retrieving and reporting from databases. Students also develop business applications using the database language.

### **CIS 208—ELECTRONIC SPREADSHEETS**

3 Credits

Presents an in-depth study of an electronic spread-

sheet. Focuses on business applications using menu commands, formulas, functions, macro commands, graphs, printing, database, and file operations.

### **CIS 209—COMPUTER BUSINESS APPLICATIONS**

3 Credits

Advanced course in which the students apply business skills, microcomputer skills, and communication skills within business applications. Emphasis is placed on application of several forms of computerized information processing including data processing, word processing, spreadsheets, graphics, and communications. Students will also analyze the effects of automation on the office worker, management, and the work environment and prepare written and oral presentations.

### **CIS 210—COBOL III**

3 Credits

Offers advanced study in COBOL programming, including programming with direct access devices and using the COBOL sort feature. Covers structured programming and documentation. Continues study of job control language.

### **CIS 211—RPG II PROGRAMMING FUNDAMENTALS**

3 Credits

Provides a general introduction to the RPG II programming language with emphasis on "hands on" programming experience. This course presents the most important features of the RPG II language—from input/output processing to applications requiring handling. Language concepts are introduced in class lecture and then applied by students in programming lab assignments.

### **CIS 212—"C" PROGRAMMING**

3 Credits

This course provides a basic understanding of the fundamental concepts involved when using a low-level development language. The emphasis is on logical program design using a modular approach involving task oriented program functions. The role of data types, storage classes and addressable memory locations is thoroughly discussed. Because C is a language quite unlike anything most students have been exposed to, the philosophy of this course is to provide a sound foundation of fundamental concepts such as the C function and the proper use of pointers.

### **CIS 213—ASSEMBLER LANGUAGE PROGRAMMING**

3 Credits

This course will give the student a very basic under-

standing of the Assembler process using IBM main-frame computers. This course will stress the importance of byte-wise manipulation of data fields when using low-level languages. The emphasis is on the actual workings of a computer during the execution of a computer program. The role of data types, EBCDIC format of data storage and addressable memory locations is thoroughly discussed. Because Assembler is so vastly different from most languages that students are exposed to, the philosophy of this course is to provide a sound foundation of fundamental concepts associated with the assembler process.

### **CIS 214—PASCAL PROGRAMMING**

3 Credits

This course provides a basic understanding of the structured programming process necessary for successful Pascal programming. The major emphasis is top-down program design and modularity, using Pascal procedures, functions and independent subprograms. Simple and advanced data types are discussed as well as program control aids, algorithm development and program debugging. The goal of this course is to provide the student with a fundamental understanding of good programming technique in a basic knowledge of Pascal syntax and structure.

### **CIS 215—FIELD STUDY**

4 Credits

Provides opportunity for a field project or research case study within the Computer Information Systems field. The project or study will include collection and analysis of data and/or actual work experience in business or industry.

### **CIS 216—ADVANCED RPG II PROGRAMMING**

3 Credits

Offers advanced study in the use of the compiler language RPG II in solving business problems. Attention is given to the various file processing methods and a working knowledge of advanced features and techniques through laboratory experience.

### **CIS 217—C.I.C.S. COMMAND LEVEL PROGRAMMING**

3 Credits

Familiarizes the student with CICS Command Level Programming Language, its organization and use, the principles of data communication, and the incorporation of these principles in CICS. Students will write pseudo-conversational CICS programs, then test and debug these programs.



### **CIS 218—ADVANCED ASSEMBLER LANGUAGE**

3 Credits

Continues those topics introduced in Assembler Language Programming with emphasis placed on table handling and disk programming techniques.

### **CIS 219—ADVANCED C.I.C.S. COMMAND LEVEL PROGRAMMING**

3 Credits

Expands the student's knowledge of CICS Command Level Programming Language. Students will write pseudo-conversational CICS programs, then test and debug these programs.

### **CIS 220—SHELL COMMAND LANGUAGE FOR PROGRAMMERS**

3 Credits

This course teaches the student how to write, test and debug Shell procedures on a computer utilizing a UNIX operating system. Topics include: the Shell and how it works, shell processes, variables, keyword and positional parameters, control constructs, special substitutions, pipelines, debugging aids, error/interrupt processing and the shell command line. The course offers students the opportunity to apply skills in a laboratory environment.

### **CIS 221—ADVANCED C PROGRAMMING**

3 Credits

Continues those topics introduced in C Language Programming with emphasis on array processing, file processing and advanced debugging techniques. Students will have the opportunity to apply skills in a laboratory environment.

### **CIS 222—OFFICE AUTOMATION**

3 Credits

Presents a perspective on the needs, potentials, and urgencies of systems to support modern office functions. Concentration is on structured analysis and design of hardware/software systems for creating, maintaining, printing, and communicating data files utilizing text processing systems. Methodologies for creating procedures to produce letters and reports from data files are covered. Concepts and techniques will be incorporated into practical applications.

### **CIS 223—INTEGRATED BUSINESS SOFTWARE**

3 Credits

Presents knowledge of integrated microcomputer software concepts. Students will design a complete business system utilizing all parts of an integrated microcomputer software package which can share the

same data, manipulating it in different ways. Projects will include usage of word processing, electronic spreadsheets, graphics, databases, and command language.

### **CIS 224—HARDWARE AND SOFTWARE TROUBLESHOOTING**

3 Credits

Presents an in-depth analysis of the components of a computer system and their relationship to each other. Includes concepts of parallel and serial connectivity, installation and maintenance of software, peripheral devices, interface cards, and device drivers. The student will analyze realistic hardware/software problems encountered in the workplace and learn techniques and procedures to implement solutions.

### **CIS 225—ADVANCED DATABASE MANAGEMENT SYSTEMS**

3 Credits

A continuation of CIS 207 Microcomputer Database Management Systems. Emphasis is on the development of advanced applications in database management.

### **CIS 226—ADVANCED ELECTRONIC SPREADSHEETS**

3 Credits

A continuation of CIS 208 Electronic Spreadsheets. Emphasis is on the advanced application of electronic spreadsheets.

### **CIS 227—TOPICS IN INFORMATION MANAGEMENT**

3 Credits

Discusses topics of current interest in information management. Attention is given to special interest projects. Field trips, guest speakers, audio-visual activities, and seminars may be utilized. (Program Advisor approval required.)

### **CIS 228—COOPERATIVE EDUCATION**

1-9 Credits

This course is designed to give students the opportunity to apply concepts learned in the classroom to actual work situations. College credit is earned by satisfying both academic standards of the College and the work performance standards of the employer. (Program Advisor approval required.)

### **CIS 229—SEMINAR**

1 Credit

Discuss topics of current interest in computerized information management with an emphasis on the appli-



cation of information management skills during lab time. Various seminar topics may be identified and offered each term under this course number.

**CIS 230—SEMINAR**

2 Credits

Discusses topics of current interest in computerized information management with an emphasis on the application of information management skills during lab time. Various seminar topics may be identified and offered each term under this course number.

**CIS 261-273—SPECIAL TOPICS IN INFORMATION/  
DATA MANAGEMENT TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the

opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

**CIS 281-293—SPECIAL TOPICS IN COMPUTER  
PROGRAMMING TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# CULINARY ARTS TECHNOLOGY

Ivy Tech offers a comprehensive Culinary Arts program which will familiarize students with culinary styles of outstanding chefs and experienced instructors in food preparation techniques. The program will provide students with numerous opportunities for actual food preparation experiences.

The Culinary Arts program covers food, beverages, menu planning, ethnic food preparation, classical cuisines, and pastries. Special attention is given to center-of-the-plate items with emphasis on the presentation of prepared food. It also focuses on nutrition, sanitation, personal hygiene and safety regulations.

A two-year Associate in Applied Science degree is offered. Technical Certificates are also available in specialized areas. Programs are offered in Hammond, Fort Wayne and Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE

### Technical Courses (55 Credits)

Prefix	No.	Title	Semester Credits
CUL	101	Basic Foods Theory and Skills	3
CUL	102	Sanitation and First Aid	2
CUL	103	Nutrition	2
CUL	104	Soups, Stocks and Sauces	3
CUL	105	Institutional Food Service	2
CUL	106	Pantry and Breakfast	3
CUL	107	Purchasing Procedures and Controls	2
CUL	108	Baking	4
CUL	109	Meat Cutting	3
CUL	201	Food and Beverage Cost Control	2
CUL	202	Special Cuisines	3
CUL	203	Table Service	3
CUL	204	Classical Pastries	3
CUL	205	Fish and Seafood	3
CUL	206	Externship	3
CUL	207	Catering	4
CUL	208	Garde Manger	3
CUL	209	Menu Design	2
CUL	210	Food Service Supervision	2
CUL	211	Classical Cuisine	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
CIS	101	Introduction to Microcomputers	3
ENG	101	English Composition	3
ENG	102	English Composition II	3
ENG	103	Speech	3
HST	115	Applied Behavioral Psychology or	
SOC	101	Human Relations	3
MAT	101	Algebra I or	
MAT	107	Math of Finance	3
Total Credits			<u>73</u>

# CULINARY ARTS TECHNOLOGY COURSE DESCRIPTIONS

## **CUL 101—BASIC FOODS THEORY AND SKILLS**

3 Credits

Fundamentals of food preparation service procedures, sanitation and safety practices in the food service business. Also provides a background and history of the hospitality industry and introduction to hospitality/food service organizations and career opportunities.

## **CUL 102—SANITATION AND FIRST AID**

2 Credits

Develops understanding of basic principles of food service sanitation and safety in maintaining a safe and healthy environment for the consumer. Laws and regulations related to safety, fire, and sanitation are discussed.

## **CUL 103—NUTRITION**

2 Credits

Examines characteristics, functions, and food sources of the major nutrient groups and how to maximize nutrient retention in food preparation and storage. Nutrient needs throughout the life cycle and related applications of menu planning and food preparation are included.

## **CUL 104—SOUPS, STOCKS, AND SAUCES**

3 Credits

Introduces the four major stocks, five major sauces, and the soups that are derived from them. Time will be given to help develop the necessary skill development in the fourteen major cooking methods.

## **CUL 105—INSTITUTIONAL FOOD SERVICE**

2 Credits

Introduction to various institutional food service facilities. Includes converting recipes for quantity food production, calculating per portion cost, and determining profitable selling prices.

## **CUL 106—PANTRY AND BREAKFAST**

3 Credits

Emphasizes techniques and skills needed in breakfast cookery and knowledge of the pantry department. Includes preparation of eggs, pancakes, waffles, and cereals. Experience is gained in salad prep, salad dressing, hot and cold sandwich prep, garnishes and appetizers.

## **CUL 107—PURCHASING PROCEDURES AND CONTROLS**

2 Credits

Development and implementation of an effective purchasing program. Focuses on supplier relations and

selection, negotiation, and evaluation. In-depth examination of major purchase categories.

## **CUL 108—BAKING**

4 Credits

Fundamentals of baking science, terminology, ingredients, weights and measures, formula conversion and storage. Preparation of yeast goods, pies, cakes, cookies and quick breads. Use and care of equipment. Sanitation, hygienic work habits and conformance to health regulations are emphasized.

## **CUL 109—MEAT CUTTING**

3 Credits

The study of meat cutting includes the breakdown of beef, pork, poultry, lamb and veal.

## **CUL 201—FOOD AND BEVERAGE COST CONTROL**

2 Credits

Mathematical principles applied to the food service industry. Development of skills in food-related tasks.

## **CUL 202—SPECIAL CUISINES**

3 Credits

Introduction to foods from various cultures: historical background and skill development in preparation of these foods. Further study of table service and table-side food preparation is included.

## **CUL 203—TABLE SERVICE**

3 Credits

Practical knowledge of and skills in various types of service in a variety of operations. Relationship between "front" and "back" of the house. Emphasis is on developing the service techniques of the major table service styles.

## **CUL 204—CLASSICAL PASTRIES**

3 Credits

Classic French, Italian and European desserts. Includes the preparation of goods such as puff pastry, specialty cookies, ganache, parlumose creams and fillings, and specialty sauces. Emphasis is on size, consistency, presentation, eye appeal and taste of pastries produced.

## **CUL 205—FISH AND SEAFOOD**

3 Credits

The importance of fish and seafood in today's market.

Types and categories of American and imported fish and shell fish, proper buying, storage, preparation, and merchandising of fish and seafood. Experiences in boning, cutting, and various methods of cooking appropriate to aquatic dishes.

#### **CUL 206—EXTERNSHIP**

3 Credits

Offers students practical work experience in chosen areas of specialization. Students will be required to work a minimum of 144 hours in an approved hospitality establishment. Emphasis is on skills at the dishwasher, prep-cook, and station cook level.

#### **CUL 207—CATERING**

4 Credits

The fundamentals of catering: the business of supplying food, goods, and organized service for public and private functions. Includes staffing, equipment, transportation, contracting, special arrangements, beverage service, and menu planning. Also covers cold food preparation and presentation techniques.

#### **CUL 208—GARDE MANGER**

3 Credits

Basic garde manger principles and functions and duties of the garde manger department as they relate to other kitchen operations. Introduction to specialty work: ice carving, artistic centerpieces, and buffet decorations. Proper equipment and garde manger area planning.

#### **CUL 209—MENU DESIGN**

2 Credits

Develops skills needed for menu planning in various types of facilities and service. Covers menu layout, selection and development, and pricing structures.

#### **CUL 210—FOOD SERVICE SUPERVISION**

2 Credits

Designed to prepare the student for the transition from employee to supervisor. Evaluation of leadership styles and development of effective skills in human relations and personnel management.

#### **CUL 211—CLASSICAL CUISINE**

3 Credits

Advanced and sophisticated classical culinary methods following the principles and techniques of Escoffier. Includes cooking techniques, timing, presentation, history, and terms pertaining to classical foods and menus, with emphasis on French cuisine. Practical experience in table service operation, kitchen coordination and timing.

#### **CUL 281-293—SPECIAL TOPICS IN CULINARY ARTS TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# DISTRIBUTION MANAGEMENT

Distribution Management is an essential aspect of the manufacturing and marketing of goods, representing "the second largest employer in the United States." Distribution Management includes the five major components of the physical distribution system: material handling, warehousing, inventory control, order processing and customer service, and transportation (road, rail, water and air carriers).

Career opportunities are found with shippers, carriers and receivers. Entry level positions could include assisting a line supervisor of one of the major physical distribution and logistics areas or assisting in a staff capacity in the coordination of several of their business activities. Advancement opportunities could include management of one or more of the physical distribution and logistics systems.

The program is offered in Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (30 Credits)

Prefix	No.	Title	Semester Credits
DSM	101	Distribution and Logistics	3
DSM	201	Transportation Systems	3
DSM	202	Warehousing	3
DSM	204	Case Studies	3
ACC	108	Career Essentials of Accounting	3
BUS	101	Introduction to Business	3
BUS	102	Business Law	3
BUS	201	Principles of Management	3
CIS	101	Introduction to Microcomputers	3
CIS	223	Integrated Business Software	3

### General Education Courses (15 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
ENG	103	Speech	3
MAT	107	Math of Finance	3
SOC	101	Human Relations	3

### Regional Courses (15 Credits)

	<u>15</u>
Total Credits	60

## DISTRIBUTION MANAGEMENT COURSE DESCRIPTIONS

### DSM 101—DISTRIBUTION AND LOGISTICS

3 Credits

The foundation course for the study of the physical distribution of materials. Reviews basic physical distribution and logistics systems related to warehousing, materials handling, inventory control, order processing, and transportation.

### DSM 102—MANUFACTURING

3 Credits

Introductory manufacturing course. Focuses on basic principles, practices, and functions of manufacturing management. Includes applications in the service industries, such as utilities, hospitals, and government.

**DSM 103—MARKETING**

3 Credits

Introductory marketing course. Focus is on basic marketing strategy for targeting markets and developing a marketing mix of product, price, distribution and promotion.

**DSM 201—TRANSPORTATION SYSTEMS**

3 Credits

Traffic and transportation management applied to rate negotiation, routing, risk and claims, expediting and tracing. Distinguishes between types of transportation operations, including rail, motor, water, air, and pipelines.

**DSM 202—WAREHOUSING**

3 Credits

Examines the warehousing function and management system controls. Differentiates between the various inventory control systems. Reviews material handling methods for the preparation, placing, and positioning of materials to facilitate movement or storage. Focus is on computer utilization in warehousing and inventory control management.

**DSM 203—SALES SERVICE**

3 Credits

Designed to develop the art of selling. Sales knowledge and sales skills are applied to choices of products. Selling principles and the order processing cycle are emphasized.

**DSM 204—CASE STUDIES**

3 Credits

Designed to apply, by the case study method, the knowledge, principles and skills acquired in students' program concentration (e.g., small business, manufacturing, marketing, physical distribution). Seminar for individualized case analysis, presentation, discussion, and solution.

**DSM 281-293—SPECIAL TOPICS IN DISTRIBUTION MANAGEMENT TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# HOTEL/MOTEL MANAGEMENT

The hospitality industry is the third largest in the nation and it ranks as the second largest in Indiana. Ivy Tech's curriculum, with guidance from the American Hotel and Motel Association, has recognized this trend and has made a commitment to meet the present and projected needs of the hospitality industry. The courses are shaped by input from hotel and restaurant management experts and prospective employers. These constant reviews of industrial changes have indicated that hands-on training is in great demand and Ivy Tech has structured its offerings to reflect those changes.

Ivy Tech endeavors to assist employers and employees to keep abreast of changes in the industry. Education in courses ranging from management and marketing to food and beverage purchasing form a solid base of theoretical and practical knowledge. To keep the hospitality industry running smoothly, industry needs a wide variety of experienced personnel.

A two-year Associate in Applied Science degree requires 65 credits for completion. A Technical Certificate is also available. The program is available in Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (47 Credits)

Prefix	No.	Title	Semester Credits
HMM	101	Hospitality Organization and Administration	3
HMM	102	Sanitation and First Aid	3
HMM	103	Purchasing Procedures and Controls	2
HMM	104	Hospitality Law and Security	3
HMM	105	Hospitality Computer Systems	3
HMM	106	Food Production Principles	3
HMM	107	Organization and Human Resource Development	3
HMM	201	Layout and Design	3
HMM	202	Hospitality Marketing and Sales	3
HMM	203	Practicum	3
HMM	204	Food and Beverage Management	3
HMM	205	Front Office	3
HMM	206	Housekeeping	3
HMM	207	Food and Beverage Cost Controls	3
CUL	203	Table Service	3
ACC	101	Accounting Principles I	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
ENG	103	Speech	3
HST	115	Applied Behavioral Psychology	3
MAT	101	Algebra I	3
SOC	104	Introduction to Sociology	3
Total Semester Credits			65

# **HOTEL/MOTEL MANAGEMENT COURSE DESCRIPTIONS**

## **HMM 101—HOSPITALITY ORGANIZATION AND ADMINISTRATION**

3 Credits

Analyzes management functions and responsibilities in administration, organization, communications, accounting, marketing, and human relations.

## **HMM 102—SANITATION AND FIRST AID**

3 Credits

Instruction in effectively managing sanitation to achieve high standards that will cause customers to return.

## **HMM 103—PURCHASING PROCEDURES AND CONTROLS**

2 Credits

Methods in the development and implementation of an effective purchasing program. Focuses on issues pertaining to supplier relations and selection, negotiation, and evaluation. Includes in-depth consideration of major categories of purchases.

## **HMM 104—HOSPITALITY LAW AND SECURITY**

3 Credits

Provides awareness of the rights and responsibilities that the law grants to, or imposes upon a hotelkeeper, and illustrates the possible consequences of failure to satisfy legal obligations. Also examines the wide variety of security procedures and systems for guest protection and internal security for asset protection.

## **HMM 105—HOSPITALITY COMPUTER SYSTEMS**

3 Credits

An overview of the information needs of lodging properties and food service establishment. Addresses essential aspects of computer systems such as hardware, software, and generic applications. Focuses on computer-based property management systems for both front and back office functions and on computer-based restaurant management systems for both service-oriented and management-oriented functions.

## **HMM 106—FOOD PRODUCTION PRINCIPLES**

3 Credits

Techniques and procedures of quality and quantity food production. Based upon principles of selection, composition, and preparation of the major food products. Includes an extensive set of basic and complex recipes for practice purposes.

## **HMM 107—ORGANIZATION AND HUMAN RESOURCE DEVELOPMENT**

3 Credits

The assessment and analysis of training personnel within the context of the basic evolution of a company. Also covers the systematic design of instruction, evaluation of training programs, and management of the training functions. Prepares an individual for the transition from employee to supervisor.

## **HMM 201—LAYOUT AND DESIGN**

3 Credits

Principles of selection, operation, and maintenance of equipment for hotels and restaurants. Covers materials, structural details, design, cost, performance and specifications.

## **HMM 202—HOSPITALITY MARKETING AND SALES**

3 Credits

Designed to provide students with basic knowledge and practical experience that will enable them to develop strategic marketing plans for various hotel properties.

## **HMM 203—PRACTICUM**

3 Credits

Provides students with practical work experience in chosen areas of specialization. Students are required to work a minimum of 144 hours under managers of selected hospitality establishments.

## **HMM 204—FOOD AND BEVERAGE MANAGEMENT**

3 Credits

Provides a basic understanding of the principles of food production and service management, reviewing sanitation, menu planning, purchasing, storage, and beverage management.

## **HMM 205—FRONT OFFICE**

3 Credits

A systematic approach to front office procedures, detailing the flow of business beginning with the reservation process and ending with billing and collection procedures within the context of the overall operation of a hotel. Examines front office management, the process of handling complaints, and concerns regarding hotel safety and security.



### **HMM 206—HOUSEKEEPING**

3 Credits

Provides an overview of the fundamentals of housekeeping management. Describes the management functions, tools, and practices required in modern lodging and institutional housekeeping departments.

### **HMM 207—FOOD AND BEVERAGE COST CONTROLS**

3 Credits

Covers principles and procedures in an effective food and beverage control system, including standards determination, the operating budget, income and cost control, menu pricing, and computer applications.

### **HMM 208—HOUSEKEEPING TECHNIQUES**

3 Credits

The basic tools required in institutional housekeeping. Instruction in accepted cleaning techniques.

### **HMM 209—APARTMENT MANAGEMENT**

3 Credits

Examines the responsibilities of landlords and tenants in apartments, townhouses, condominiums, and other permanent rental properties. Includes study of small and large complexes, business and maintenance details, and roles of personnel in each setting.

### **HMM 210—HOTEL SUPERVISION**

3 Credits

Offers case problems in hospitality management. Students are expected to assess realistic situations that confront modern hospitality executives.

### **HMM 211—FINANCIAL MANAGEMENT**

3 Credits

Special applications of accounting principles to the hospitality industry. Includes business principles pertaining to food and lodging, methods of recordkeeping for creditors, owners, and government, and payroll control. Emphasis is on tax laws specific to the industry, expense control, and techniques of profitable management.

### **HMM 212—INSTITUTIONAL MANAGEMENT**

3 Credits

Management problems unique to institutions such as boarding schools, professional sports training camps, summer camps, hospitals, nursing homes, prisons, and facilities for retirement, mental health, and extended care. Develops awareness of basic common needs throughout the hospitality industry. Guest lectures and field trips to institutions highlight the study.

### **HMM 213—PROPERTY MANAGEMENT**

3 Credits

Covers all phases of property management including first impression, staffing, training, capital investments, cost analysis, rentals, and renovation.

### **HMM 214—TOURISM**

3 Credits

Provides comprehensive study of tourism principles, practices, and philosophies. Offers practical education in the business of tourism.

### **HMM 215—HOTEL-MOTEL SEMINAR**

3 Credits

Offers opportunities by means of guest lectures and group discussion to explore particular problems or topics of current interest.

### **HMM 216—BASIC COOKING I**

3 Credits

Lectures and demonstrations in the fourteen basic forms of food preparation.

### **HMM 217—FISH AND SEAFOOD**

3 Credits

Preparing hot and cold fish, crustaceans, shellfish, and mollusks. Includes baking, poaching, braising, sauteing, deep fat frying, broiling, grilling, and gratin methods.

### **HMM 218—MEAT PREPARATION**

3 Credits

Basic methods of preparation for beef, veal, pork, lamb, poultry and game. Includes sauteing, broiling, grilling, stewing, simmering, poaching, boiling, and braising methods.

### **HMM 219—MEAT I**

3 Credits

Focuses on meat identification as established by the National Association of Meat Purveyors. Demonstrates the cutting of carcasses into primal cuts and the breakdown of beef, lamb and pork.

### **HMM 220—NATIONAL DISHES**

3 Credits

Application of basic cooking methods and forms of preparing national dishes. Features the preparation of Swiss, French, German, English and American, Italian, Austrian, and other fine cuisine.

### **HMM 221—BASIC COOKING II**

3 Credits

Skill development in the preparation of bases, stocks, sauces, and soups.

### **HMM 223—BUFFET CATERING**

3 Credits

Advanced instruction in cold food preparation and presentation techniques: charcuterie, specialty canapes, hors d'oeuvres, appetizers, pates, galantines, chaud-froids, terrines, tallow and ice carving, aspics, mousses, cold sauces, vegetable carving, and food decoration. Covers food materials' utilization, buffet planning, layout, equipment, zoning, and services. Provides a practical approach to decorating platters for industrial and classical buffets. Students plan, prepare, present and serve a cold buffet.

### **HMM 224—BLOWN AND PULLED SUGAR**

3 Credits

Basic course for learning the fundamental techniques

of sugar work which prepares culinarians to blow and pull sugar to create unique table decorations.

### **HMM 225—SERVER TRAINING**

3 Credits

A seminar class for training professional waiters and waitresses in proper serving techniques. Special emphasis is placed on human relations and communication skills.

### **HMM 281-293—SPECIAL TOPICS IN HOTEL/ MOTEL MANAGEMENT TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# INDUSTRIAL SUPERVISION TECHNOLOGY

The Industrial Supervision program provides formal training in supervising techniques and principles. Students learn how to set goals, plan, organize, staff, direct, motivate, and control operations in an industrial setting. These skills are applied to supervision, quality control, production control, safety, and methods improvement. Emphasis is placed on team building and employee in-service training. The program prepares students for entry-level supervisory positions in manufacturing, the service industry, and government agencies.

A two-year program, requiring 60 credits, leads to an Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. Programs are offered in Anderson, Evansville, Fort Wayne, Gary, Indianapolis, Lafayette, Marion, Muncie, South Bend, and Warsaw.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (30 Credits)

Prefix	No.	Title	Semester Credits
IST	101	Quality Control Concepts and Techniques I	3
IST	102	Techniques of Supervision I	3
IST	103	Industrial Safety I	3
IST	104	Techniques of Supervision II	3
IST	201	Personnel Management and Training	3
IST	202	Production Planning and Control	3
IST	211	Labor Relations	3
ACC	101	Accounting Principles I	3
BUS	102	Business Law	3
CIS	101	Introduction to Microcomputers	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
MAT	108	Statistics	3
SOC	101	Human Relations	3
SOC	106	Principles of Macroeconomics	3

### Regional Courses (12 Credits)

	12
Total Credits	60

## INDUSTRIAL SUPERVISION TECHNOLOGY COURSE DESCRIPTIONS

### IST 101—QUALITY CONTROL CONCEPTS AND TECHNIQUES I

3 Credits

Covers current quality control concepts and techniques in industry, with emphasis on modern manufacturing requirements.

### IST 102—TECHNIQUES OF SUPERVISION I

3 Credits

Introduces basic employee development with emphasis on the responsibilities of a newly appointed supervisor. Special attention is given to organizational structure, motivation, delegation of authority, inter-

views, orientation and introduction of new employees, employee performance evaluations, and dealing with employee conflict.

### **IST 103—INDUSTRIAL SAFETY I**

3 Credits

Covers the day-to-day responsibilities of management and supervision toward attaining an accident-free organization. Emphasizes first aid, fire prevention and control, safety procedures in starting and stopping machines, accident investigations, and other preventive measures. Also covers methods of advertising good safety practices, rules of plant protection in relation to safety and OSHA.

### **IST 104—TECHNIQUES OF SUPERVISION II**

3 Credits

Further develops skills for effective supervision of employees by utilizing analysis of cases, group discussion, in-basket exercises, and role-playing. Includes problem-solving techniques, labor relations, legal guidelines, policy making, counseling troubled employees, effective communications, and human relations skills.

### **IST 105—BUSINESS MANAGEMENT/ MANUFACTURING**

3 Credits

Introductory manufacturing course. Focuses on basic principles, practices, and functions of manufacturing management. Includes applications in the service industries, such as utilities, hospitals, and government.

### **IST 106—SURVEY OF POSTAL SYSTEM**

3 Credits

Survey of the major components and subdivisions of the postal service system. Traces the delivery of written communication and merchandise, postal philosophies, policies, procedures, rules and regulations from earlier eras to the present.

### **IST 201—PERSONNEL MANAGEMENT AND TRAINING**

3 Credits

Manpower planning, employee recruitment, selection and placement, promotions, transfers, separations, and wage and salary administration. Emphasizes employee training as an organizational resource. Demonstrates development and implementation of effective training programs. Attention is given to the nature of learning, concept teaching, the creation of a motivating learning atmosphere, use of audiovisual aids, planned versus spontaneous learning, rote teaching, mnemonic devices, learning curves, and learning as problem solving.

### **IST 202—PRODUCTION PLANNING AND CONTROL**

3 Credits

Production planning concepts and inventory control techniques and applications. Areas of concentration include the production function, design and development of products/services, location and layout, forecasting and scheduling, materials purchasing and inventory management, and quality control.

### **IST 203—RELIABILITY OBJECTIVES**

3 Credits

Introduces development and principles of reliability engineering. Establishes mathematical and physical bases of reliability and applies basic elements of reliability data analysis. Surveys concepts basic to modern reliability requirements, with emphasis on practical applications in manufacturing processes and production operations.

### **IST 204—MECHANICAL METROLOGY**

3 Credits

Provides instruction and laboratory experiments in the use of mechanical testing and measurement equipment for quality control.

### **IST 205—TECHNIQUES OF LEADERSHIP**

3 Credits

With the aid of personality testing, the student learns about various approaches to effective leadership and discovers an appropriate personal leadership style. Specific qualities and skills needed for conference leadership (organizing, facilitating, controlling, summarizing, speaking, and problem defining and solving) are also explored.

### **IST 206—TIME AND MOTION STUDY**

3 Credits

Examines industrial applications of time and motion studies in establishing rates.

### **IST 207—MANUFACTURING COSTS AND VALUE ANALYSIS**

3 Credits

Applies recognized techniques and tests to measure value and eliminate unnecessary costs in design, development and manufacturing without affecting quality; differs from cost control in that it is directed toward analyzing value, not cost.

### **IST 208—MATERIALS HANDLING**

3 Credits

Applied stresses and quality controls pertaining to the



handling and storing of industrial materials. Attention is given to shelf life of materials, weight and mass configuration, and specifications of vendors materials.

### **IST 209—PLANT LAYOUT AND PROCESS PLANNING**

3 Credits

Principles and practices of factory planning, including layout fundamentals, layouts for small and medium sized plants, and selection of equipment for the production and handling of materials. Also covers tooling determination and operational time, setup, and sequence. Emphasizes efficiency in the arrangement of work areas for reduction of costs.

### **IST 210—CASE PROBLEMS IN MANAGEMENT**

3 Credits

Application of quantitative and qualitative skills to case study problems in management. Solutions demand planning, leadership, and financial analysis.

### **IST 211—LABOR RELATIONS**

3 Credits

Examines labor laws and practices pertaining to industrial relations. Covers development and application of laws, mediation conciliation, collective bargaining, arbitration, and handling of grievances.

### **IST 212—MANUFACTURING ORGANIZATION I**

3 Credits

The organization of a typical manufacturing operation, with attention to functional components and their interrelationships. Reviews organizational principles as they apply to the operation, and examines the duties and responsibilities of the first-line supervisor. Develops the basic tools of managerial decision-making and applies them to typical case problems.

### **IST 213—MANUFACTURING ORGANIZATION II**

3 Credits

Quality control, research and development, marketing, production, inventory control, personnel, and maintenance functions. Involves forms of ownership, analysis of financial data, capital investment, and budgeting.

### **IST 214—INDUSTRIAL SAFETY II**

3 Credits

Establishes procedures following an accident. Covers the preparation and maintenance of accident records, severity rates, workers' compensation and insurance claims. How effective safety programs are managed in compliance with the law and contractual agreements.

### **IST 215—PURCHASING AND INVENTORY CONTROL**

3 Credits

A practical approach to procurement of materials with regard to price, quality, quantity, and delivery, as well as the purchasing department's place in the organizational structure. Defines responsibility of the purchasing department and its relationship to other departments. Legal aspects, ethics and standards as they relate to procurement.

### **IST 216—TRAFFIC AND TRANSPORTATION MANAGEMENT I**

3 Credits

Transportation systems, federal regulations, freight classification, rates, tariffs, and claims.

### **IST 217—TIME MANAGEMENT**

3 Credits

Trains supervisors and other personnel in more effective management of the business day. Covers time management strategies and behavior patterns. Exercises in scheduling and allocating time, identifying and handling time wasters, dealing with interruptions, and planning for better use of the working day.

### **IST 218—STATISTICAL CONCEPTS AND TECHNIQUES**

3 Credits

Deals with various topics pertaining to statistical applications of quality control, including frequency distribution, probability theory applications and sampling techniques.

### **IST 219—CUSTOMER SERVICE**

3 Credits

Provides functional knowledge of mail delivery and collection systems and in-depth knowledge of all services provided to postal customers.

### **IST 220—MAIL PROCESSING**

3 Credits

Designed to provide an in-depth view of revenue determination procedures and flow characteristics involved in receipt, processing, and dispatch of all classes of mail.

### **IST 221—POSTAL PROBLEM ANALYSIS**

3 Credits

Postal problems are presented for which the students must use systems analysis, problem solving grids, and decisions by objectives in arriving at solutions.

**IST 222—EMPLOYEE SERVICES**

3 Credits

Covers the functions of a personnel unit in relation to the services it provides employees of the Postal Service.

**IST 281-293—SPECIAL TOPICS IN INDUSTRIAL SUPERVISION TECHNOLOGY**

1-5 Credits

A Special Topics course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concept presented in their program area (Contact Chief Academic Officer for more information).

# MARKETING TECHNOLOGY

The Marketing Technology program offers extensive business training to prepare the student for employment opportunities in marketing operations and management. Courses include marketing, management, sales techniques, retailing, advertising, accounting, mathematics and communications.

Career opportunities may be found in management, advertising, distribution, professional sales, retailing, wholesaling, and merchandising, in profit as well as in nonprofit organizations.

A two-year program, requiring 60 credits, leads to an Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. The program is offered in Anderson, South Bend, Evansville, Fort Wayne, Gary, Indianapolis, Kokomo, Lafayette, Muncie, Terre Haute, and Valparaiso.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (33 Credits)

Prefix	No.	Title	Semester Credits
BUS	101	Introduction to Business	3
MKT	101	Principles of Marketing	3
MKT	102	Principles of Selling	3
MKT	103	Principles of Retailing	3
MKT	104	Advertising	3
MKT	201	Introduction to Market Research	3
MKT	202	Logistics/Purchasing Control	3
MKT	204	Marketing Management	3
ACC	101	Accounting Principles I	3
BUS	201	Principles of Management	3
BUS	208	Organizational Behavior	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
SOC	107	Principles of Microeconomics	3
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
MAT	107	Math of Finance	3
CIS	101	Introduction to Microcomputers	3

### Regional Courses (9 Credits)

	<u>9</u>
Total Credits	60

# MARKETING TECHNOLOGY COURSE DESCRIPTIONS

## **MKT 101—PRINCIPLES OF MARKETING**

3 Credits

Introduces the marketing role in society and how it affects the marketing strategy, with emphasis on the marketing mix, product planning, and the effects of the demographic dimension on the consumer market.

## **MKT 102—PRINCIPLES OF SELLING**

3 Credits

Provides an overview of selling and the selling process. Includes the psychology of selling and develops selling skills through a series of selling situations.

## **MKT 103—PRINCIPLES OF RETAILING**

3 Credits

Studies retailing concepts and practices, including retail merchandise planning, buying, pricing, promotion, and control in established retail operations. Attention is given to managerial and operational skills.

## **MKT 104—ADVERTISING**

3 Credits

Focuses on advertising as the key element in the promotion of goods and services in the marketplace. Attention is given to advertising media and media selection, advertising copy strategy, advertising regulations and organizations of advertising functions.

## **MKT 201—INTRODUCTION TO MARKET RESEARCH**

3 Credits

Applies basic research methods entailing procedures, questionnaire design, data analysis, and effectively communicating research results.

## **MKT 202—LOGISTICS/PURCHASING CONTROL**

3 Credits

This course introduces the student to the framework of logistics, the logistics environment, customer services and materials management. Subjects of current interest such as material resources planning (MRP) and just-in-time (JIT) principles are also introduced.

## **MKT 203—PHYSICAL DISTRIBUTION**

3 Credits

Treats the physical flow of products and the operation of efficient flow systems with emphasis on the economics of transportation. Examines rates, traffic service and coordination problems of transportation systems.

## **MKT 204—MARKETING MANAGEMENT**

3 Credits

Focuses on the analysis, implementation, and control of marketing strategy. Emphasis is placed on the major decisions management faces in its effort to harmonize the objectives and resources of the organization with the needs and opportunities of the marketplace.

## **MKT 205—PRINCIPLES OF INSURANCE**

3 Credits

Introduces the risks faced by business firms and how they might be handled, to include property, liability and personal losses, with attention to insurance contracts and their uses of life, health and pension insurance, as well as public policy including government regulations and social insurance.

## **MKT 206—SALES MANAGEMENT**

3 Credits

Studies the role of the sales manager emphasizing the leadership function. Attention is given to building a sales team, judging sales performance, territorial management, techniques of sales recruiting and interviewing, training and development, and management of the field sales office.

## **MKT 207—PUBLIC RELATIONS**

3 Credits

This course provides a broad coverage of the public relations field and is designed to acquaint students with the role of effective internal and external public relations in business and industry. It will examine the goals and benefits of public relations, the tools of the public relations practitioner, and the principles and trends of the field.

## **MKT 208—DISTRIBUTION CENTER MANAGEMENT**

3 Credits

The introduction and study of warehousing from both a depositor and operator viewpoint. Topics will include the study of warehousing functions, location and specific site criteria, labor productivity, cost controls, equipment and packaging and customer service.

## **MKT 209—EXPORT/IMPORT I**

3 Credits

Studies the practical application of export and import techniques and concepts, government regulations, documentation, and financial and transportation con-



siderations of the movement of commerce from and to the United States.

**MKT 210—EXPORT/IMPORT II**

3 Credits

This course is designed to familiarize the student with import practices, governmental regulations and carrier rate making practices. Students will complete practical exercises, solve importing problems and work with the tariff schedule of the United States.

**MKT 211—TRANSPORTATION PRICING**

3 Credits

Provides an introduction to, and training and practice in, freight classification, tariff interpretation and selection, zip code pricing, contracts and negotiations.

**MKT 212—FREIGHT LOSS AND DAMAGE CLAIMS**

3 Credits

Focuses on appropriate methods for claims management, damage claims prevention, and legal remedies for disputed damage claims.

**MKT 219—FIELD STUDY/COOPERATIVE EDUCATION**

4 Credits

The student will work at a job site that is specifically related to his/her career objectives. The course is designed to give students on-the-job experience while receiving college credits toward an associate degree.

**MKT 281-293—SPECIAL TOPICS IN MARKETING TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# PARALEGAL TECHNOLOGY

The demand for trained paralegals is increasing and the number of job opportunities is projected to increase significantly by the mid 1990s, according to employment analysts. Ivy Tech recognizes this demand and has shaped a curriculum with input from attorneys and professionals associated with the legal field. These advisors offer Ivy Tech the opportunity to establish the qualifications necessary for success in the paralegal field. Ivy Tech's courses meet these qualifications, providing trained, knowledgeable paralegal professionals.

The duties of trained specialists can range from assisting in complicated legal research to managing the scheduling of court appearances. The educational training provides a wide variety of job opportunities and mobility. Classroom lectures in such areas as civil law, real estate, research and writing, wills and trusts, combined with on-the-job training, prepare students for an exciting job as a paralegal.

The program, requiring 75 credits for completion, is offered in Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (51 Credits)

Prefix	No.	Title	Semester Credits
LEG	101	Office Management and Ethics	3
LEG	102	Legal Research and Writing	4
LEG	103	Civil Procedure	3
LEG	104	Torts	3
LEG	105	Business Associations	3
LEG	106	Claims Investigation	3
LEG	107	Contracts and Commercial Law	3
LEG	108	Property Law	3
LEG	109	Family Law	3
LEG	110	Wills, Trusts and Probate	3
LEG	111	Criminal Law and Procedure	3
LEG	112	Bankruptcy Law	3
LEG	201	Appellate Procedure	2
LEG	202	Litigation	3
LEG	203	Computers in the Law Office	3
ACC	108	Career Essentials of Accounting	3
CIS	223	Integrated Business Software	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
SOC	101	Human Relations	3
MAT	107	Math of Finance	3
CIS	101	Introduction to Microcomputers	3
SCI	XXX	Life and Physical Science Course	3

### Regional Courses (6 Credits)

6

Regional Courses must include a minimum of 6 credits in non-technology-specific areas.

Total Credits

75

## PARALEGAL TECHNOLOGY COURSE DESCRIPTIONS

### LEG 101—OFFICE MANAGEMENT AND ETHICS

3 Credits

Instruction on automated and manual docket and conflict control systems, file organization, closed file control systems, file organization, closed file control research segregation, client funds handling and management principles. Emphasizes internal communication skills and compliance with the Rules of Professional Conduct.

### LEG 102—LEGAL RESEARCH AND WRITING

4 Credits

The study and use of legal research tools such as digests, loose leaf services, reporters, statutory compilations and forms books. Legal writing format and methodology are presented through practical application in drafting memoranda and correspondence. Shepardizing and proper case citation skills are emphasized.

### LEG 103—CIVIL PROCEDURE

3 Credits

A study of the Indiana Trial Rules and miscellaneous local rules. Filing requirements, computation of time and form drafting are emphasized.

### LEG 104—TORTS

3 Credits

Torts includes a survey of the law of comparative negligence, products liability, defamation, false arrest and other civil wrongs, including knowledge of the elements of such causes of action.

### LEG 105—BUSINESS ASSOCIATIONS

3 Credits

The study of various business structures and the rights, duties, liabilities and formalities attendant to such structures. A survey of partnership, agency and corporation law is included.

### LEG 106—CLAIMS INVESTIGATION

3 Credits

The study of witness interview techniques, preservation of evidence, organizational skills and alternative methods of gathering facts. Professional client intake and client communication skills are emphasized.

### LEG 107—CONTRACTS AND COMMERCIAL LAW

3 Credits

A survey of contract law and the Uniform Commercial Code. Special statutes regarding state unfair trade

practices, consumer deception and consumer rights are also presented.

### LEG 108—PROPERTY LAW

3 Credits

A survey of the law of real and personal property. Provides practical exposure to title searches, loan documentation, zoning requirements, financing statements, leases and deeds.

### LEG 109—FAMILY LAW

3 Credits

A survey of the law of dissolution, custody, child support and visitation, marriage and adoption. Financial declaration forms, client intake, Child Support Guidelines and available social services are presented as practical information.

### LEG 110—WILLS, TRUSTS AND PROBATE

3 Credits

Survey of the law of estates, wills, probate and guardianship, as well as intestate succession. Preparation of probate and administration forms, asset inventories and valuations, certain tax forms and accountings are included.

### LEG 111—CRIMINAL LAW AND PROCEDURE

3 Credits

Survey of Indiana criminal statutes and selected federal criminal laws. Investigative and administrative skills are emphasized.

### LEG 112—BANKRUPTCY LAW

3 Credits

Bankruptcy Law includes a survey of the Federal Bankruptcy Act. Emphasizes skills needed to accumulate personal financial information, compile initial schedules, collect and organize data for first meeting of creditors, complete proofs of claim and pursue creditor's rights.

### LEG 201—APPELLATE PROCEDURE

2 Credits

In-depth study of the Indiana Rules of Appellate Procedure, with concentration on the mechanical aspects of preparation and filing of the record on appeal and the format required for briefs submitted.

## **LEG 202—LITIGATION**

### **3 Credits**

Litigation includes the study of the Indiana Rules pertaining to actual trial. The discovery process and its tools are reviewed. Skills such as document organization and retrieval, witness statement and deposition summarizing, indexing and scheduling are presented. The Federal Rules of Evidence are surveyed. Trial notebook preparation is surveyed.

## **LEG 203—COMPUTERS IN THE LAW OFFICE**

### **3 Credits**

A survey of software support available to the law prac-

itioner such as litigation support and estate planning support. Also includes instruction on availability and use of research databases such as Dialog, Nexis, Lexis and Westlaw.

## **LEG 281-293—SPECIAL TOPICS IN PARALEGAL TECHNOLOGY**

### **1-5 Credits**

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# STATISTICAL PROCESS CONTROL TECHNOLOGY

The Statistical Process Control program provides students with the opportunity to enter the statistical process and quality control field with application knowledge of the latest concepts in these areas. The SPC or quality control technician, through application of statistical process quality control technology, may advance to supervision or related manufacturing support functions. The program also offers employed persons the opportunity to upgrade skills.

Areas of study consist of courses in statistical process control, quality control, manufacturing, data processing, math, science, and human relations. The emphasis is placed upon advanced statistical concepts, data collection and presentation, machine and process capabilities, advanced measurement systems, control of purchased component quality, and the use of computers for optimum data analysis.

A two-year program, requiring 64 credits, leads to an Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. The program is offered at Fort Wayne, Kokomo, Terre Haute and Columbus.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (32 Credits)

Prefix	No.	Title	Semester Credits
SPC	101	Statistical Process Control	3
CIS	102	Data Processing Fundamentals	3
IST	101	Quality Control Concepts and Techniques I	3
IST	102	Techniques of Supervision I	3
IST	215	Purchasing and Inventory Control	3

Seventeen semester credits of regional technical courses are to be selected from the following courses:

SPC 102	Advanced Statistical Process Control	SPC 201	Analysis of Metallurgical Failure
SPC 103	Employee Participation Techniques and Quality Improvements	SPC 204	Statistical Concepts and Techniques
SPC 104	Introduction to Nondestructive Testing	SPC 205	Nondestructive Testing
SPC 105	Nondestructive Testing Applications I	SPC 206	Mechanical Metrology
SPC 106	Nondestructive Testing Applications II	SPC 207	Electrical Metrology
SPC 107	Quality Control Concepts and Techniques	SPC 281-293	Special Topics in Statistical Process Control (1-5 Credits)
SPC 108	Quality Control Engineering Principles and Techniques	AMT 101	Manufacturing Processes
SPC 109	Engineering Materials	BUS 101	Introduction to Business
SPC 110	Quality Control Engineering Theory and Applications	IMT 102	Introduction to Print Reading
SPC 111	Reliability Objectives	IST 104	Techniques of Supervision II
SPC 112	Reliability Techniques	IST 203	Reliability Objectives
		IST 206	Time and Motion Study
		IST 207	Manufacturing Costs and Value Analysis
		IST 208	Materials Handling
		IST 211	Labor Relations

**General Education Courses (18 Credits)**

Prefix	No.	Title	
SOC	101	Human Relations	3
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I or MAT 104 Algebra/Trigonometry I	3
SCI	101	Physical Science or SCI 103 Physics I	3
XXX	XXX	Social Science or Life/Physical Science Course	3

**Regional Courses (14 Credits)**

**14**  
Total Credits **64**

## STATISTICAL PROCESS CONTROL TECHNOLOGY COURSE DESCRIPTIONS

**SPC 101—STATISTICAL PROCESS CONTROL**

3 Credits

Studies the fundamental tools of statistical process control used in industry to reduce cost and increase productivity at a predictable quality level. Emphasis on principles and techniques of statistical process control applied to prevention instead of detection of problems.

**SPC 102—ADVANCED STATISTICAL PROCESS CONTROL**

3 Credits

Advanced techniques used in industry to ensure economic production of goods based on defect prevention rather than defect detection. Deals with modification change or adjustment processes based on statistical evidence.

**SPC 103—EMPLOYEE PARTICIPATION TECHNIQUES & QUALITY IMPROVEMENTS**

3 Credits

The development of an employee involvement program such as "circle," "team," "group" and other concepts. Includes problem-solving techniques of brainstorming, cause and effect diagrams, data gathering, check sheets, Pareto analysis, central location, frequency distribution, and histograms. Covers the role of management and employees in the process and their relationship to participative management.

**SPC 104—INTRODUCTION TO NONDESTRUCTIVE TESTING**

2 Credits

This course will acquaint the student with the principles and various types of nondestructive examination methods, their advantages, limitations, and applications.

**SPC 105—NONDESTRUCTIVE TESTING APPLICATIONS I**

3 Credits

Theoretical and practical aspects of NDE in the following areas are covered: liquid penetrant, ultrasonic testing, magnetic particle testing, and visual inspection.

**SPC 106—NONDESTRUCTIVE TESTING APPLICATIONS II**

3 Credits

Theoretical and practical aspects of NDE in the following areas are covered: radiography, eddy current testing, acoustic emission, and leak testing.

**SPC 107—QUALITY CONTROL CONCEPTS AND TECHNIQUES**

3 Credits

Emphasizes recent technological developments in quality control.

**SPC 108—QUALITY CONTROL ENGINEERING PRINCIPLES AND TECHNIQUES**

3 Credits

Presents principles and techniques of modern quality control engineering, with attention to management, engineering, economic and production factors. Emphasizes the assurance of quality at the hardware, processing, and systems levels.

**SPC 109—ENGINEERING MATERIALS**

3 Credits

Includes the basic principles of metallurgy and the properties of materials in the section of parts and manufacturing processes. Explores the various ways in which the strength and hardness of metals can be altered by

heating and cooling. Ceramics, composites, polymers, and other exotic metals are examined.

### **SPC 110—QUALITY CONTROL ENGINEERING THEORY AND APPLICATIONS**

3 Credits

Presents current theory and applications of quality engineering for assurance and verification of product quality at the hardware, processing and systems levels. Emphasizes statistical analysis, laboratory experiments, and test and case problem solving applications.

### **SPC 111—RELIABILITY OBJECTIVES**

3 Credits

Introduces the development and principles of reliability engineering. Establishes the mathematical and physical bases of reliability and applies the basic elements of reliability data analysis. Surveys concepts basic to modern reliability requirements, with emphasis on practical applications in manufacturing processes and production operations.

### **SPC 112—RELIABILITY TECHNIQUES**

3 Credits

Study of reliability techniques and applications designed to obtain or improve reliability analysis.

### **SPC 201—ANALYSIS OF METALLURGICAL FAILURE**

3 Credits

Study of the factors responsible for the failure of components or structures, which may be motivated by either sound engineering practice or by legal considerations. Covers the proper application of failure analysis techniques to provide valuable feedback to design problems and material limitations.

### **SPC 202—PROCESS CONTROL GAUGING AND MEASUREMENTS**

3 Credits

Deals with the science of measurement for obtaining accurate and reliable data using computerized statistical process control and mechanical metrology. Includes selection of various instruments for specific applications.

### **SPC 203—CODES, SPECIFICATIONS AND PROCEDURES INTERPRETATIONS**

3 Credits

Explores the different types of codes, specifications and procedures used in modern industry and provides opportunity for use and interpretation. Blueprint reading is included.

### **SPC 204—STATISTICAL CONCEPTS AND TECHNIQUES**

3 Credits

Presents various topics pertaining to statistical applications of quality control, including frequency distribution, probability theory and applications, and sampling techniques.

### **SPC 205—NONDESTRUCTIVE TESTING**

3 Credits

Presents an overview of the relationship of nondestructive testing to the total quality function. Attention is given to the advantages and limitations of various test methods.

### **SPC 206—MECHANICAL METROLOGY**

3 Credits

Provides instruction and laboratory experiments in the use of mechanical testing and measurement equipment for quality control.

### **SPC 207—ELECTRICAL METROLOGY**

3 Credits

Offers instruction and laboratory experiments in the use of electrical testing and measurement equipment for quality control.

### **SPC 281-293—SPECIAL TOPICS IN STATISTICAL PROCESS CONTROL TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# DIVISION OF VISUAL COMMUNICATIONS TECHNOLOGIES





*The Division of Visual Communications Technologies offers opportunities to combine creative talent with practical applications. Hands-on instruction encourages originality, technical development, and familiarity with sophisticated equipment in the graphics and media field. Courses are structured to give a broad understanding of principles and to develop the skills needed for their efficient and effective commercial use. The student is advised to contact the nearest center concerning specific courses and program offerings.*

## COMMERCIAL PHOTOGRAPHY

The Commercial Photography program prepares students for a professional career in the visual communications field. The program is reflective of and responsive to the industry needs and quality standards—both technical and societal. The program provides experiences and competency skills in camera techniques, both color and black and white darkroom techniques, studio and location lighting for products and portraiture, composition and design, business and communications skills, as well as conceptualization and creative problem solving.

There is a continuous interaction between the program and the professional field through the jury evaluation system, program advisory committees and the field experience programs. Faculty are professionally active and bring professional expertise into the studio environment. The culmination of the student's activity is the completion of an exit portfolio which demonstrates cumulative skills and knowledge of the commercial photographic field. The portfolio is the primary tool used in job-seeking efforts. Students also develop skills in resume and cover letter writing and interviewing techniques.

The program requires 72 credits for an Associate in Applied Science degree. Technical Certificates are also available in specialized areas. The program is offered in Terre Haute, Columbus, Evansville, South Bend and Sellersburg.

## ASSOCIATE IN SCIENCE DEGREE PROGRAM

### Technical Courses (39 Credits)

Prefix	No.	Title	Semester Credits
CIP	103	Fundamentals of Design	3
CIP	104	Photography I	3
CIP	105	Photographic Science and Theory I	3
CIP	106	Studio Practice I	3
CIP	107	Photography II	3
CIP	108	Photographic Science and Theory II	3
CIP	109	Studio Practice II	3
CIP	201	Principles of Color Photography	3
CIP	202	Advanced Processes and Techniques	3
CIP	203	Professional Portraiture	3
CIP	204	Commercial Photography Techniques I	3
CIP	205	Commercial Photography Techniques II	3
CIP	211	Portfolio Preparation	3

**General Education Courses (18 Credits)**

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	107	Math of Finance	3
XXX	XXX	Life and Physical Sciences or Social Science Courses (Regionally Determined)	9

**Regional Courses (15 Credits)**

Total Credits	15
	72

## COMMERCIAL PHOTOGRAPHY COURSE DESCRIPTIONS

**CIP 103—FUNDAMENTALS OF DESIGN**

3 Credits

Application of flat pattern design concepts to black and white still photography. Projects in visual design provide experience in applying design theory.

**CIP 104—PHOTOGRAPHY I**

3 Credits

Covers basic black and white photographic processes using 35mm, medium format, and 4 x 5 large format cameras. Basic black and white darkroom processes are taught, as well as basic lighting techniques.

**CIP 105—PHOTOGRAPHIC SCIENCE AND THEORY I**

3 Credits

Basic theories pertaining to black and white photography. Study of cameras and lenses, characteristics of films and papers and the chemistry of emulsions exposure and development. Includes basic physics of light and filters.

**CIP 106—STUDIO PRACTICE I**

3 Credits

Introduction to studio work in black and white photography using continuous light sources. Basic set-up techniques and lighting methods for a variety of subject matter. Practice with photo flood lamps and quartz lamps, both floods and spots, and a variety of equipment used to modify light.

**CIP 107—PHOTOGRAPHY II**

3 Credits

Students will develop advanced camera skills with 35mm, medium format, and view cameras. Techniques for photographing in a variety of picture taking situations will be covered. Special darkroom techniques and processes are included. Good composition and the use of photography as a communication tool will be emphasized.

**CIP 108—PHOTOGRAPHIC SCIENCE AND THEORY II**

3 Credits

This course covers special black and white processes such as push processing and the zone system. Portable and studio flash systems are studied as well as lighting ratios and the Inverse Square law. Basic processes for reproduction of images are taught.

**CIP 109—STUDIO PRACTICE II**

3 Credits

Advanced techniques of multiple lighting set-ups, studio electronic flash, location lighting, special effects, and large sets.

**CIP 110—HISTORY OF PHOTOGRAPHY**

3 Credits

Survey of the technological, aesthetic, social, and political changes that the medium of photography has undergone. Nineteenth century processes are studied and recreated. Visits are made to historical archives to view prints.

**CIP 201—PRINCIPLES OF COLOR PHOTOGRAPHY**

3 Credits

Development of camera and laboratory skills needed for both color negative and color positive process. Work with state-of-the-art equipment. The course encompasses color psychology and esthetics, as well as the physics and the chemistry of color photography.

**CIP 202—ADVANCED PROCESSES AND TECHNIQUES**

3 Credits

A darkroom course dealing with specialized techniques used by commercial photography labs such as masking, internegatives, use of print film, litho film, production techniques, and retouching.

### **CIP 203—PROFESSIONAL PORTRAITURE**

3 Credits

Exploration of approaches and methods in traditional and alternative portraiture in studio and on-location photography. Emphasis is on creative approaches to commercial portraiture.

### **CIP 204—COMMERCIAL PHOTOGRAPHY TECHNIQUES I**

3 Credits

Introduction to studio and lab techniques used in advertising and industrial photography. Business practices are emphasized, as well as creative problem solving techniques.

### **CIP 205—COMMERCIAL PHOTOGRAPHY TECHNIQUES II**

3 Credits

Special techniques in advertising and industrial photography, such as those used in fashion, food, and product illustration.

### **CIP 206—SPECIAL PROJECTS I**

3 Credits

Accommodates student interest in specific areas of their field in which they wish to concentrate or in areas where there is a need to strengthen skills. Performance and completed work must be portfolio quality and reflect applicability to the main areas of design, production, and/or illustration.

### **CIP 207—SPECIAL PROJECTS II**

3 Credits

Provides specific experiences in selected areas. All projects must be approved by the instructor prior to the start-up of project work.

### **CIP 208—INDEPENDENT STUDY I**

3 Credits

Provides students with opportunities to design a project for specific areas. A plan must be developed to show what the project outcome/results will be. Work is restricted to the program area and must be portfolio quality.

### **CIP 209—INDEPENDENT STUDY II**

3 Credits

Provides opportunities to develop skills in specific areas of a visual communications program or to elect a course from the college curriculum which is supportive of a career in their chosen program. Suggested areas that are not program specific are computer program-

ming, marketing, advertising, an externship, or supervision.

### **CIP 210—VISUAL COMMUNICATIONS**

3 Credits

Examines visual communications in all visual professions in our society. Provides historical perspectives and encourages development of critical awareness of the contemporary arts.

### **CIP 211—PORTFOLIO PREPARATION**

3 Credits

A summary of student achievements in the Visual Communications Division. Efforts are directed to providing students with quality portfolio work which demonstrates knowledge and skills needed to perform as a professional photographer. The portfolio should demonstrate knowledge and skills in the major program areas and in Independent Studies and Special Projects courses. A student may elect to select one credit hour from the required three for a field study.

### **CIP 212—BUSINESS OF PHOTOGRAPHY**

3 Credits

Examines issues related to managing a photography business. Marketing and promotion, estimating and pricing, legalities, insurance, business correspondence, and the use of computers are included.

### **CIP 213—COMPUTER GRAPHICS**

3 Credits

An introductory course in design with a microprocessor computer terminal. Students produce black and white and color projects with a variety of software packages. Emphasis is on uses of illustration and types of commercial art projects.

### **CIP 214—JOURNALISTIC AND EDITORIAL PHOTOGRAPHY**

3 Credits

Students will photograph events and human interest features to gain experience in contributions to various publications. Establishing visual relations in the photo essay is emphasized.

### **CIP 215—ADVANCED PORTRAITURE**

3 Credits

Further exploration of advanced approaches to portraiture. Emphasis is on creativity and quality.

### **CIP 216—NATURAL LIGHT PORTRAITURE**

3 Credits

Photographing people by natural light including pos-

ing techniques, location selection, props, film, and equipment.

**CIP 217—FASHION PHOTOGRAPHY**

3 Credits

An introduction to the field of fashion photography with emphasis on commercial application.

**CIP 218—FINE ART PHOTOGRAPHY**

3 Credits

Examination of current issues in non-commercial photography. Explores attitudes of photographers and critics on a wide range of topics through directed reading, class discussion, and gallery visits.

**CIP 219—SPECIAL PHOTOGRAPHIC PROCESSING**

3 Credits

This course deals primarily with unconventional photographic processes that are important from a historical viewpoint.

**CIP 220—SENSITOMETRY**

3 Credits

Estimation of response of photographic materials to

radiant energy, including methods of exposing, processing, measurement, and data evaluation.

**CIP 221—FIELD STUDY/COOPERATIVE EDUCATION**

3 Credits

The course is designed to give students on-the-job experience at a job site that is specifically related to a chosen occupational area.

**CIP 222—ELECTRONIC PHOTOGRAPHY**

3 Credits

Examines the area of still video photography and various electronic darkroom software packages. Experience with the electronic darkroom environment includes editing processes, manipulating images in black-and-white and color, and working with various output devices.

**CIP 281-293—SPECIAL TOPICS IN COMMERCIAL PHOTOGRAPHY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# COMMERCIAL VIDEO TECHNOLOGY

The Commercial Video Technology program prepares students for a professional career in the visual communications field. The program is reflective of the visual communications industry's needs and standards. The program provides experiences in research, problem solving and hands-on procedures in video and multi-image program production.

The program focuses upon pre-production planning, production, post-production and distributive procedures. Students learn to produce scripts and storyboards, plan activities, develop production schedules and produce a project budget based upon production costs. In video production, students learn to use all appropriate types of equipment, direct the production and supervise production personnel. Students gain experience in studio and remote location techniques. Post production activities include audio dubbing, voice-over narration, roll back or time code editing, creation of computer graphic visuals, animation, and character generated titling. Students learn techniques in audio recording, mixing and electronic audio enhancement using both reel-to-reel and cassette systems. Students also learn techniques in 35mm photography and multi-image controlled microprocessor slide production.

The faculty bring to the classroom the knowledge and procedures they gain through their professional activities and industry associations. A student may elect to do an externship at an area organization which has a video or AV department. All students produce an exit portfolio which demonstrates the quality and scope of their knowledge and skills.

The Associate in Applied Science degree in Commercial Video Technology requires 72 credits for completion and can be completed in 4 semesters. The program is offered at South Bend.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (42 Credits)

Prefix	No.	Title	Semester Credits
COV	101	Audio/Video Systems Theory	3
COV	102	Audio/Video Equipment and Maintenance	3
COV	104	Audio Production I	3
COV	105	Video Production I	3
COV	106	Production Planning	3
COV	107	Video Production II	3
COV	108	Script Writing	3
COV	109	Multi-Track Sound Systems	3
COV	110	Video Tape Editing	3
COV	201	Advanced Audio Production	3
COV	202	Advanced Video Production	3
COV	203	Multi-Image Design	3
ART	204	History of Art Survey I	3
ART	208	History of Art Survey II	3

**General Education Courses (18 Credits)**

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
SOC	102	Introduction to Psychology	3
SOC	104	Introduction to Sociology	3
MAT	107	Math of Finance	3
SCI	101	Physical Science	3

**Regional Courses (12 Credits)**

12  
Total Credits 72

## COMMERCIAL VIDEO TECHNOLOGY COURSE DESCRIPTIONS

**COV 101—AUDIO/VIDEO SYSTEMS THEORY**

3 Credits

The theory and practices of electronic systems as related to audio and video recording and playback systems. Students will learn about amplification, modulation, equalization and signal processing.

**COV 102—AUDIO/VIDEO EQUIPMENT AND MAINTENANCE**

3 Credits

Hands-on experiences in set-up, maintenance and utilization of AV equipment such as film projection systems, overhead projectors, audio and video playback and recording systems and 35mm projection systems.

**COV 104—AUDIO PRODUCTION I**

3 Credits

Provides knowledge and studio practices necessary to successfully perform sound recording, editing and narration. Skill development in selecting microphones for specific use, and basic audio mixing.

**COV 105—VIDEO PRODUCTION I**

3 Credits

Covers video recording systems, systems design and videography for post-production editing. Course projects include studio lighting, hidden "miking", audio "dubbing", titling and supportive production procedures such as inter-connecting equipment, operating video cameras and proper video recorder operation.

**COV 106—PRODUCTION PLANNING**

3 Credits

Focuses on knowledge and skills needed to prepare objectives, audience analysis, and overall planning for

video and audio productions. Students learn to develop visual flow and continuity, and apply principles of visual design to video storyboards. Special attention is given to coordinating audio cues to visual action.

**COV 107—VIDEO PRODUCTION II**

3 Credits

Course activities include remote video "shoots" planning, such as location scouting and site preparation. Projects in lighting, miking, camera and recorder set-up, and on-location directing.

**COV 108—SCRIPT WRITING**

3 Credits

Projects in developing scripts for specific markets such as commercial, industrial, public information and educational. Specific scripting functions of format selection, content organization, message design and audio and visual cues are included. Emphasis is on instructional design in scripting.

**COV 109—MULTI-TRACK SOUND SYSTEMS**

3 Credits

Theory and application of multiple track audio recording. Hands-on studio practice includes projects in electronic reverberation, parametric equalization and audio special effects. Special attention is given to timing, pacing, and stereo imaging in mixdown.

**COV 110—VIDEO TAPE EDITING**

3 Credits

Techniques and procedures in electronic video tape editing. Projects include assemble and insert editing, audio dubbing, lip sync and microprocessor controlled editing. Both rollback and time code editing systems

are covered with emphasis on the advantages and processes of each system as related to audio and video signal.

### **COV 201—ADVANCED AUDIO PRODUCTION**

3 Credits

Theory of acoustical principles are applied to projects involving multiple microphone recording, post production sweetening and creation of synthesized sound. Development of critical listening abilities and preparation of audio for media distribution.

### **COV 202—ADVANCED VIDEO PRODUCTION**

3 Credits

Combines all aspects of video production for a comprehensive program: budgeting, procedures for staff assignments, and techniques of client relations. Projects include generation of computer graphics, real-time animation, and electronic image enhancement.

### **COV 203—MULTI-IMAGE DESIGN**

3 Credits

Students learn to script, storyboard and shoot 35mm slides for a slide tape program. Projects include audio narration production and sequencing on the micro-processor system.

### **COV 204—SPECIAL PROJECTS I**

3 Credits

Course is designed to accommodate student interest in specific interest areas. Projects are by mutual agreement between faculty and student. Performance and completed work must be portfolio quality and reflect applicability to the main areas of student program.

### **COV 205—SPECIAL PROJECTS II**

3 Credits

Designed to provide specific experience in selected areas, which may be combined or concentrated. Two projects are recommended and additional projects require instructor approval.

### **COV 206—INDEPENDENT STUDY I**

3 Credits

Provides the opportunity to design a project for a spe-

cific area of a student's program. Development of project plan and expected outcomes. Work is restricted to student program area and must be portfolio quality.

### **COV 207—INDEPENDENT STUDY II**

3 Credits

Provides opportunity to develop high skills in specific areas of a visual communications program or to elect a course from the college curriculum which is supportive of a career in their chosen program. Other areas might include computer programming, marketing, advertising, an externship or supervision with approval from program chairperson. Program projects require course instructor's approval.

### **COV 208—PORTFOLIO PREPARATION**

3 Credits

The summary of the student's efforts in the Visual Communications Division. The student's and instructor's efforts are directed to providing a student with quality portfolio work demonstrating knowledge and skills needed to perform as a professional visual artist. Contents of the portfolio should demonstrate knowledge and skills in the major areas of their specific program and in peripheral areas studied through the Independent Studies and Special Projects courses. A resume and cover letter are considered a necessary part of a completed portfolio. A student may elect to select one credit hour from the required three for a field study for their program. This requires program chairperson approval and can only be elected if portfolio project work can be accomplished in the remaining time.

### **COV 281-293—SPECIAL TOPICS IN COMMERCIAL VIDEO TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# GRAPHIC DESIGN

The Graphic Design program prepares students for a professional career in the visual communications field. The program provides experiences and competency skills in layout design, key-lining, storyboarding, black and white illustration, package design, type fitting and specification, computer graphics and pre-printing processes. Special attention is given to designing for print (collateral), space and time. Students learn to develop and produce multi-media campaigns for product and service organizations, corporate logos, corporate identity programs and reproduction of quality illustrations. Procedures in research, problem-solving, developing a target marketing plan, concept/theme development, client presentations and studio practices are investigated.

The culmination of the students' activity is the completion of an exit portfolio which demonstrates cumulative skills and knowledge of the graphic design field. The portfolio is the primary tool used in job-seeking efforts. Students also develop skills in resume and cover letter writing and interviewing techniques.

There is a continuous interaction between the program and the professional field through the jury evaluation system, guest speakers, field trips, program advisory committees and the field experience programs. Faculty are professionally experienced and bring their expertise into the studio environment.

The Associate in Applied Science degree requires 72 credits for completion and can be completed in 4 semesters. An Associate in Science degree is offered in Evansville, enabling a student to transfer to the University of Southern Indiana. The program is offered in Columbus, Evansville, Sellersburg and South Bend.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (39 Credits)

Prefix	No.	Title	Semester Credits
ART	101	Fundamentals of Design	3
ART	103	Fundamentals of Drawing	3
ART	104	Graphic Design I	3
ART	105	Typography	3
ART	106	Drawing for Layout and Illustration	3
ART	107	Production I	3
ART	108	Graphic Design II	3
ART	109	Production II	3
ART	110	Situation Drawing	3
ART	201	Graphic Design III	3
ART	204	History of Art Survey I	3
ART	208	History of Art Survey II	3
ART	215	Desktop Publishing	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	XXX	Math Course (Regionally Determined)	3
SOC	102	Introduction to Psychology	3



**General Education Courses (continued)**

Prefix	No.	Title	
SOC	104	Introduction to Sociology	3
SCI	101	Physical Science	3

**Regional Courses (15 Credits)**

Total Credits 15  
72

## GRAPHIC DESIGN PROGRAM DESCRIPTIONS

### ART 101—FUNDAMENTALS OF DESIGN

3 Credits

Design theory and color dynamics as applied to composing the visual field. The manipulation and use of color is also addressed. Projects in visual design provide experiences in applying design theory.

### ART 103—FUNDAMENTALS OF DRAWING

3 Credits

Develops techniques in contour, gesture and modeled form drawing. Awareness and control of scale, proportion and perspective are developed with studio projects. The effects of lighting, eye level and station point and how they affect the visual are of major concern. Students also learn proper support selection as related to technique and medium used.

### ART 104—GRAPHIC DESIGN I

3 Credits

Develops knowledge and skills in creating designs for print (collateral). Provides experiences in designing brochures, posters, stationery packages and newsletters.

### ART 105—TYPOGRAPHY

3 Credits

Introduces use of type as design element. Includes techniques in the layout of type, typographic history, type specification, copyfitting, copy proofing and marking up type for the typesetter.

### ART 106—DRAWING FOR LAYOUT AND ILLUSTRATION

3 Credits

Techniques of developing drawings for layout and illustration in appropriate media.

### ART 107—PRODUCTION I

3 Credits

Deals with production techniques and procedures.

Course projects provide an experimental base in production techniques.

### ART 108—GRAPHIC DESIGN II

3 Credits

Developing skills in the design of space media. Includes experiences in designing newspaper, magazine, outdoor, transit and display advertising. Of special concern will be the relationship of concept to viewer needs and interests.

### ART 109—PRODUCTION II

3 Credits

The production of art and mechanicals for space media. Includes photographic procedures, jobber selection in the areas of printing, typesetting, illustration, and photography, video graphics and desktop publishing.

### ART 110—SITUATION DRAWING

3 Credits

Techniques of producing visuals for specific activities and visual situations. Pencil, markers and ink will be used for the drawing projects.

### ART 201—GRAPHIC DESIGN III

3 Credits

The planning and development of multi-media campaigns for print, space and time. Focuses on brochures, catalogs, and direct mail print; newspaper, outdoor and magazine space; and television time advertising. Also transit, terminal display and yellow pages space advertising, point-of-purchase display and poster.

### ART 202—SPECIAL PROJECTS I

3 Credits

Designed to accommodate student interest in specific areas of interest or in areas where there is a need to strengthen skills. Performance and completed work must be portfolio quality and reflect applicability to the main areas of the program.

### **ART 203—INDEPENDENT STUDY I**

3 Credits

Provides students with opportunities to design projects for specific areas of interest. The project plan must be approved by the instructor. Work is restricted to student program area and must be portfolio quality.

### **ART 204—HISTORY OF ART SURVEY I**

3 Credits

A survey of painting, sculpture and architectural styles dating from ancient Mediterranean cultures to the Renaissance period.

### **ART 205—SPECIAL PROJECTS II**

3 Credits

Designed to provide specific experience in selected areas. Areas may be combined or concentrated. Two projects are recommended and additional projects must have instructor approval. All projects must be approved by the instructor prior to the start-up of project work.

### **ART 206—INDEPENDENT STUDY II**

3 Credits

Skill development in specific areas of a Visual Communications program or a related program such as marketing, advertising, an externship or supervision. Program projects require course instructor's approval. Program chairperson's approval is required to elect non-program coursework.

### **ART 207—PORTFOLIO PREPARATION**

3 Credits

Culmination of student efforts in the Visual Communications Division. Efforts are directed toward providing students with quality portfolio work demonstrating knowledge and skills needed to perform as a professional visual artist. Includes resume and cover letter. A student may elect to select one credit hour from the required three for a field study for their program.

### **ART 208—HISTORY OF ART SURVEY II**

3 Credits

Survey of the painting, sculpture, printing and architecture from the Renaissance through 20th century cultures.

### **ART 209—AIRBRUSH RENDERING**

3 Credits

Presents concepts and practices in the use of the airbrush to render visuals in black and white and in color.

### **ART 210—ILLUSTRATION TECHNIQUES I**

3 Credits

Develops dexterity in the application of transparent and opaque media.

### **ART 211—CREATIVE ILLUSTRATION CONCEPTS**

3 Credits

Introduces montage illustration through experience in actual problems.

### **ART 212—SPECIAL DARKROOM TECHNIQUES**

3 Credits

Examines photographic processes, chemicals, and paper.

### **ART 213—SPECIALIZED LAYOUT CONCEPTS I**

3 Credits

Introduces advanced students to the concept board and its value in selling a campaign. Emphasizes the outdoor board as the initial step in campaign development.

### **ART 214—SPECIALIZED LAYOUT TECHNIQUES**

3 Credits

Advanced study of corporate identity. Emphasis is on the designer's role in creating a desirable, consistent corporate image. Experience with specific design problems.

### **ART 215—DESKTOP PUBLISHING**

3 Credits

A basic course in desktop publishing with special emphasis on transference and application of conventional skills gained in the preparation of mechanicals for printing.

### **ART 216—COMPUTER GRAPHICS**

3 Credits

A study of the historical development of computer images which includes business graphics, typesetting, software packages, pagination, video and cinematics.

### **ART 281-293—SPECIAL TOPICS IN GRAPHIC DESIGN**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# GRAPHIC MEDIA PRODUCTION TECHNOLOGY

The Graphic Media Production Technology program provides comprehensive instruction to prepare students for entry level positions in the graphic media field. Instructional areas include: art and copy preparation, camera and darkroom fundamentals, layout and stripping flats, platemaking, offset presswork, composition, production control, special effects and ink and paper selection.

The program prepares students for jobs in a variety of fields from the traditional craft area of typographic composition, or pre-press preparatory work, to binding and finishing.

The two-year program, requiring 65 credits, leads to an Associate in Applied Science degree. The program is offered in Terre Haute.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (35 Credits)

Prefix	No.	Title	Semester Credits
GRA	101	Computer Graphics I	3
GRA	102	Introduction to Machine Printing	3
GRA	103	Photography Fundamentals I	3
GRA	104	Art and Copy Preparation	3
GRA	105	Basic Design Principles	3
GRA	106	Introduction to Color Printing	3
GRA	201	Photomechanical Reproduction	3
GRA	202	Science of Color	3
GRA	203	Graphic Design	3
GRA	204	Designing with Type	3
GRA	206	Budget and Planning	3
GRA	236	Employment Orientation	1
AOT	110	Keyboarding Skill Development	1

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
ENG	103	Speech	3
SOC	101	Human Relations	3
MAT	107	Math of Finance	3
CIS	101	Introduction to Microcomputers	3

### Regional Courses (12 Credits)

	<u>12</u>
Total Credits	65

# GRAPHIC MEDIA PRODUCTION TECHNOLOGY COURSE DESCRIPTIONS

## **GRA 101—COMPUTER GRAPHICS I**

3 Credits

Study of the historical development of computer images which includes business graphics, typesetting, software packages, pagination, video and cinematics.

## **GRA 102—INTRODUCTION TO MACHINE PRINTING**

3 Credits

History and overview of the interrelationships of processes, materials, and techniques utilizing equipment and tools necessary in platemaking, bindery/finishing and offset press. Class allows student to take assigned projects from design to bindery.

## **GRA 103—PHOTOGRAPHY FUNDAMENTALS I**

3 Credits

Introductory course in basic black and white photography with the 35mm camera. Introduces film development, darkroom techniques and visual interpretation of photographic design problems.

## **GRA 104—ART AND COPY PREPARATION**

3 Credits

A foundation course in design, typographic and communication concepts. Traditional techniques as well as computer-aided technologies are used in the consideration of color, format and use of visuals in illustration. Problem solving emphasis with assignments executed through strip-up of the negative into a flat and proofing the same.

## **GRA 105—BASIC DESIGN PRINCIPLES**

3 Credits

An introduction to fundamental design concepts used in two-dimensional media. Explores shape, color, line, pattern & Gestalt principles through creative exercises.

## **GRA 106—INTRODUCTION TO COLOR PRINTING**

3 Credits

A study of basic color theory, materials and methods used in the reproduction processes. Techniques and materials are covered with assignments utilizing different processes including 4-color from pre-separated negatives, register and run. Includes inks and systems.

## **GRA 107—COMPOSITION SYSTEMS I**

3 Credits

The use, operation, and application of machine principles and mechanisms related to typesetting; laboratory projects in setting composition photographically; utilization and examination of various input systems.

## **GRA 108—STUDIO PHOTOGRAPHY I**

3 Credits

Introduction to basic studio procedure and lighting set-ups. Control of artificial light and creative compositional techniques are explored through assigned exercises. Procedures in equipment handling, controlling lighting ratios and further contrast and printing techniques in the darkroom.

## **GRA 109—COLOR METHODS IN PHOTOGRAPHY I**

3 Credits

The course is designed to introduce students to color negative photographic materials with 35mm format camera. Topics include processing, printing and application of theories on color and perception.

## **GRA 110—ADVERTISING DESIGN**

3 Credits

Covers newspaper ads, magazine ads, two-color and full-color folders, brochures, calendars and P.O.P. merchandising aids in a comprehensive form for national advertising.

## **GRA 201—PHOTOMECHANICAL REPRODUCTION**

3 Credits

A basic course in image conversion in black and white as well as color theory. Photo chemistry, halftones, darkroom techniques and diffusion transfer are examined.

## **GRA 202—SCIENCE OF COLOR**

3 Credits

Physical properties of light and color, and psychological aspects of color perception and color relationships through creative exercises. Color theories of Itten, Munsell, Goethe, Chevreul and Albers are examined.

## **GRA 203—GRAPHIC DESIGN**

3 Credits

Analysis and review of basic theories of graphic layout and design and their underlying principles and processes. Includes alphabet design and design language, imposition, design steps, rough, thumbnail, comprehensive and final layout and preparation of dummy.



### **GRA 204—DESIGNING WITH TYPE**

3 Credits

Introduction to typography. Type classification, identification and selection. Copy fitting, mark-up systems and proofreading. Fundamentals of layout and design for print media.

### **GRA 205—SURVEY OF PRINTING PROCESSES**

3 Credits

Presents topics not normally covered in other courses. Examines those types of printing businesses in local area, utilizing guest lecturers from these businesses. Local market is surveyed and students are responsible for a research project concerning local business with presentation of oral or written report.

### **GRA 206—BUDGET AND PLANNING**

3 Credits

Estimating various types of printing produced by the major processes. Includes use of standard price catalogs, analysis of material, labor and machine cost factors.

### **GRA 207—AUDIOVISUAL PRESENTATION**

3 Credits

The use of design principles in 35mm color transparencies and fundamentals of audio production and editing. Each student will present a slide/tape production that conveys a concept through the effective combination of images, music and/or narration.

### **GRA 208—STUDIO PHOTOGRAPHY II**

3 Credits

Concentration in advertising photography including fashion and product shots. Advanced studio lighting techniques and medium-to-large format camera operation with special purpose films, high print quality and technical control are emphasized.

### **GRA 209—PHOTOGRAPHY FUNDAMENTALS II**

3 Credits

Advanced printing techniques introducing the use of medium-format cameras and black and white films, flash illumination and special purpose films.

### **GRA 210—PORTRAITURE**

3 Credits

Designed to examine approaches and methods in traditional and alternative portraiture in studio and on-location photography. Emphasis is on creative approaches to commercial portraiture. Special dark-room techniques for printing portraits is introduced.

### **GRA 211—FLEXOGRAPHY**

3 Credits

Includes study of high-speed roll-fed press operation. Emphasis on safety, set-up and register. Theory class will also utilize field trips to flexo-webb printing plants.

### **GRA 212—COMPOSITION SYSTEMS II**

3 Credits

An extension of the skills introduced in Composition Systems I, with assignments of greater difficulty and complexity utilizing available equipment, including computer-controlled graphics and text.

### **GRA 213—DESKTOP PUBLISHING**

3 Credits

Covers computer techniques in pre-preparatory and preparatory composing procedures, including typesetting and typographic concepts. Emphasis is on computer skills and output.

### **GRA 214—SCREEN PRINTING**

3 Credits

Explores screen construction and process reproduction methods. Includes paper, tusch, knife-cut and photographic stencils and printing media surfaces applications.

### **GRA 215—COMPUTER GRAPHICS II**

3 Credits

An overview of computers and their creative potential in graphic design focusing on videotext graphics. Students create and manipulate images using a keyboard and a graphics tablet. Some projects will be photographed for student portfolio.

### **GRA 216—BUSINESS OF GRAPHIC DESIGN**

3 Credits

Examines operational procedures that have worked successfully to build efficient, effective design departments while maintaining aesthetic consideration.

### **GRA 217—SAFETY TECHNIQUES**

1 Credit

Proper procedures, rules, regulations and safety requirements for fire, electrical, mechanical and chemical dangers. Examines use of color to identify hazards and emergency measures. Emphasis is on shop safety, layout, storage and practices to avoid accidents and injuries.

## **GRA 218—TROUBLESHOOTING AND MAINTENANCE**

1 Credit

Upkeep, lubrication and techniques of spotting malfunctioning equipment and corrections of problems concerning paper feed, dampening, inking systems.

## **GRA 219—SPECIAL PROBLEMS IN PRINTING**

3 Credits

Individual investigation, research, studies and/or surveys of selected problems will enable students to identify objectives, procedures, equipment and key checkpoints on selected projects. Includes color separation, plant management and quality control.

## **GRA 220—LOCATION PHOTOGRAPHY**

3 Credits

Deals with special problems in the control of natural and artificial light in on-location photography, with emphasis on publicity-related photography for community effort.

## **GRA 221—COPY METHODS**

3 Credits

Introduction to methods used in high-contrast and continuous tone flat copy work. Uses 35mm and 4 x 5 films in color and black and white. Emphasis is on appropriate printing skills.

## **GRA 222—LARGE FORMAT PHOTOGRAPHY**

3 Credits

Introduction to the operational features of the view camera in studio and on-location photography with black and white films. Emphasizes professional standards in execution and presentation.

## **GRA 223—IMAGES IN OUR CULTURE**

3 Credits

Examines images and issues represented in fine-art and mass media publications. Students gain historical perspective and are encouraged to develop a critical awareness of contemporary image-making issues through discussion and written exercises.

## **GRA 224—PHOTOJOURNALISM**

3 Credits

Students photograph community events and human interest features to gain experience in freelance contributions to local publications. Gain skills in fact gathering, editorial writing, developing of a story and establishing visual relationships in the photo essay. Focuses on contemporary photojournalism.

## **GRA 225—COLOR METHODS IN PHOTOGRAPHY II**

3 Credits

Advanced application of color film materials in studio and on-location photography. Study of contemporary color photography in periodicals. The fine-tuning of exposure and printing skills is emphasized.

## **GRA 226—HISTORY OF PHOTOGRAPHY**

3 Credits

Designed to familiarize students with the advances in photography since its invention. Explores the interrelationship between the technical, aesthetic and commercial aspects of photography through selected readings and gallery visits.

## **GRA 227—SENSITOMETRY FUNDAMENTALS**

3 Credits

The fundamental operation, principles and equipment associated with reflection and transmission densitometer basics. Students will produce large format negatives in black and white and in color for the purpose of controlling densities through exposure and development.

## **GRA 228—STUDIO PHOTOGRAPHY III**

3 Credits

Builds on previous experience gained in the studio. The coursework is comprised of individual projects developed by students. Students will execute a coherent body of studio work to become part of their final portfolios. Regularly scheduled individual evaluations are considered part of the coursework.

## **GRA 229—DIGITIZED PHOTOGRAPHY**

3 Credits

Introduces methods of transferring line illustration and continuous tone photographs to the computer screen for further modification. Students will also digitize video images. Creative exercises strengthen student skills in advertising design and desktop publishing.

## **GRA 230—PHOTOGRAPHY AND TYPOGRAPHY**

3 Credits

Commercially oriented approaches to the combination of type and photography. Creative exercises in captioning and advertising photography are formulated to allow students to combine principles of design, advertising and photography.

## **GRA 231—ARCHITECTURAL AND INTERIOR PHOTOGRAPHY**

3 Credits

Advanced study of special lighting and placement prob-

lems as encountered in on-location photography with large-format cameras. For those students already familiar with artificial and existing-light controls.

**GRA 232—FINE ART APPROACHES IN PHOTOGRAPHY**

**3 Credits**

An introduction to a number of non-silver photographic processes and the experimental application of hand-work to these and silver-gelatin images. Includes survey of fine art, photographic history and technical overview of 19th and 20th centuries.

**GRA 233—SPECIAL PROBLEMS IN PHOTOGRAPHY**

**3 Credits**

For fourth semester majors. Individual, long-term projects in areas appropriate to student needs and interests. Includes weekly evaluation of progress by instructor and program advisor. Work produced to be included in final portfolio, and considered preparatory for transfer to a baccalaureate program.

**GRA 234—SPECIAL PROBLEMS IN ADVERTISING**

**3 Credits**

Covers advertising in the U.S. economy, broadcast reg-

ulations, the advertising media, audience measurement and the future of cable and pay television.

**GRA 235—AGENCY OPERATIONS**

**3 Credits**

Considers methods agencies use to prepare advertising budgets and to develop creative and media strategies. Other aspects involved in day-to-day agency business practices will also be covered.

**GRA 236—EMPLOYMENT ORIENTATION**

**1 Credit**

Investigation of employment opportunities in the printing field. Examines sources of occupational information and preparation for job seeking.

**GRA 281-293—SPECIAL TOPICS IN GRAPHIC MEDIA PRODUCTION TECHNOLOGY**

**1-5 Credits**

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# INTERIOR DESIGN TECHNOLOGY

The Interior Design Technology program is concerned with the understanding and planning of the interior environment. The program provides skills and experiences in problem solving which lead to the fulfillment of human needs through constructive, creative space utilization.

Structured courses enhance awareness of spatial relationships and organization, environmental systems, human factors and appropriate materials to improve the environmental standard based on health and safety guidelines.

Students are assisted in developing individual portfolios of projects demonstrating knowledge and skills of the interior design field. Projects include both residential and contract.

Students meet potential employers through projects juried by area professionals, supervised design problem-solving for community service organizations and related field trips. The advisory committee, active faculty links within the design community, and field study encourage professional affiliation as do student memberships in professional design organizations.

The two-year program, requiring 69 semester hours, leads to an Associate in Applied Science degree, offered at South Bend, Kokomo and Evansville. A Technical Certificate requiring 32 semester hours is available at Sellersburg, Evansville, and Kokomo.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (39 Credits)

Prefix	No.	Title	Semester Credits
INT	101	Fundamentals of Design	3
INT	102	Structural Systems	3
INT	103	Environmental Design I	3
INT	104	Textiles for Interiors	3
INT	105	Design Presentations	3
INT	106	Environmental Systems	3
INT	107	Color and Light	3
INT	108	Environmental Design II	3
INT	201	Materials and Methods	3
INT	203	Professional Practices	3
INT	216	Computer Graphics	3
ART	204	Art History Survey I	3
ART	208	Art History Survey II	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	107	Math of Finance	3
SOC	102	Introduction to Psychology	3
SOC	104	Introduction to Sociology	3
SCI	101	Physical Science	3

### Regional Courses (12 Credits)

Regionally determined by Interior Design Technology program chairperson	12
Total Credits	69



## **INTERIOR DESIGN TECHNOLOGY COURSE DESCRIPTIONS**

### **INT 101—FUNDAMENTALS OF DESIGN**

3 Credits

Survey of the elements and principles of interior design and color theory. Major emphasis on effective and creative application and problem solving.

### **INT 102—STRUCTURAL SYSTEMS**

3 Credits

Provides the interior design student with a basic knowledge of building structures, construction techniques, and building materials. Introduces technical skills needed to read and draft blueprints.

### **INT 103—ENVIRONMENTAL DESIGN I**

3 Credits

An introductory course which stresses the fundamentals of space analysis and functional planning based on the principles of design and user behavior as they relate to the interior environment. The mechanics of presenting the interior plan are also introduced.

### **INT 104—TEXTILES FOR INTERIORS**

3 Credits

Basic textile identification and classification from fiber to finish.

### **INT 105—DESIGN PRESENTATIONS**

3 Credits

The elements of two- and three-dimensional design concepts as related to interior representational drawings. Emphasis is on interior space perception for realistic presentation to clients.

### **INT 106—ENVIRONMENTAL SYSTEMS**

3 Credits

Introduction to environmental systems concepts in architecture. Drafting exercises are utilized as an aid to understanding these systems.

### **INT 107—COLOR AND LIGHT**

3 Credits

Introductory study of color theory, including additive and subtractive systems. Covers the effects of various types of lighting on color.

### **INT 108—ENVIRONMENTAL DESIGN II**

3 Credits

Emphasizes the relationship between individuals and

their surroundings. Explores the psychological concepts pertaining to the design of space.

### **INT 109—HISTORY OF INTERIORS I**

3 Credits

Survey of the development of the interrelationship of architecture, art and interior environments from antiquity through the 18th century.

### **INT 110—HISTORY OF INTERIORS II**

3 Credits

Continuation of the study of the development of the interior environment from the 19th century to the present.

### **INT 201—MATERIALS AND METHODS**

3 Credits

Examines physical properties and characteristics of various building materials including textile products. Addresses problems in specifying, estimating, and installing these materials.

### **INT 202—CONTRACT DESIGN**

3 Credits

An introduction to the various categories of commercial design and their specialized requirements.

### **INT 203—PROFESSIONAL PRACTICES**

3 Credits

Introduction to business principles and practices as they relate to the Interior Design profession. Topics include business and installation procedures, methods of charging and the steps involved in business formation.

### **INT 204—ENVIRONMENTAL DESIGN III**

3 Credits

Exploration of the physiological, psychological and phenomenal aspects of color and light on interior space. Application in regards to appropriate materials and components selection will be emphasized.

### **INT 205—HOTEL AND RESTAURANT DESIGN**

3 Credits

Looks at the special considerations in designing for the hospitality industry. Includes such areas as meeting rooms, dining rooms, guest rooms and common areas as well as the intricacies of a restaurant layout, from the furniture arrangement to personnel traffic patterns.

### **INT 206—CUSTOM DESIGN IN INTERIORS**

3 Credits

Development of original designs for furnishings, textiles and accessory pieces.

### **INT 207—DESIGN STUDIO I**

3 Credits

Laboratory experience with case studies designed to provide experience in creating a complete design selection.

### **INT 208—DESIGN STUDIO II**

3 Credits

Continuation of Design Studio I.

### **INT 209—PORTFOLIO PREPARATION**

3 Credits

Summary of student achievements in the Interior Design department. Efforts are directed to providing students with quality portfolio work which demonstrates the knowledge and skills needed to perform as a professional interior designer.

### **INT 210—PROJECT MANAGEMENT**

3 Credits

Concentrates on the selection of accessories and specific procedures for installation of various categories of materials. The sequence of installation procedures for a job, from the signing of the contract to completion of the job, are emphasized.

### **INT 211—SUPPORT SYSTEMS PLANNING**

3 Credits

Requirements and space planning for kitchens, baths and support systems. Standardization of cabinetry and fixtures as well as expectation for the areas in the planning.

### **INT 212—HISTORIC PRESERVATION**

3 Credits

The process of establishing historic properties will be researched. Preservation, restoration and adaptive reuse will be differentiated as applied to both public and private properties.

### **INT 213—FIELD STUDY I**

3 Credits

Field placement or research project within student's

occupational specialty, to include collection and analysis of data and work experience in business and industry.

### **INT 214—FIELD STUDY II**

3 Credits

Continuation of Field Study I.

### **INT 215—INDEPENDENT STUDY**

3 Credits

Projects will be developed from specialty areas which will allow design resolution, presentation and job management to be experienced by the student.

### **INT 216—COMPUTER GRAPHICS**

3 Credits

Investigation of the concepts, techniques and skills required for computer graphics. Students will also learn to use computer-aided drafting programs for 2D and 3D drawing and database extracting.

### **INT 217—VISUAL MERCHANDISING**

3 Credits

Introduces principles of display and special techniques and equipment required in display work.

### **INT 218—HEALTH FACILITY DESIGN**

3 Credits

Introduction to the interior design of the health care environment includes such considerations as health and safety codes, finishes, equipment, and furnishings specific to the health care environment.

### **INT 219—SPECIAL PROJECTS**

1-5 Credits

Involves a project of the student's choice and is determined in conference with a faculty advisor. The project design solution is expected to include all phases of professional interior research and practices. A signed contract must be filed with the department chairperson prior to enrollment.

### **INT 281-293—SPECIAL TOPICS IN INTERIOR DESIGN TECHNOLOGY**

3 Credits

A Special Topics course provides students with the opportunity to experience seminars, workshops and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

## **DIVISION OF HUMAN SERVICES AND HEALTH TECHNOLOGIES**





*The Division of Human Services and Health Technologies recognizes the increasing employment opportunities in the expanding health field. Ivy Tech prepares students to become technically trained members of the health care team. Classroom, laboratory, and clinical experience prepare students for service in hospitals, laboratories, nursing homes, child-care facilities, physicians' offices, and other health care related settings.*

*College health occupation programs are recognized and accredited by appropriate external accrediting agencies. The student is advised to contact the nearest center for information concerning programs and course offerings.*

## **CHILD DEVELOPMENT**

The Child Development program focuses on early childhood growth and development including adult-child relationships. Emphasis is placed on the development of skills and techniques for providing appropriate environments and care for young children. Instruction is provided in the physical, emotional, social, and cognitive areas of early childhood. The training is appropriate for candidates seeking the Child Development Associate (CDA) credential. The student develops competencies through classroom instruction, observation, and participation in early childhood settings.

Employment opportunities include: Day Care, Nursery School, Head Start, Family Day Care, Pediatrics Setting, Nanny Care, School Aide, School Age Care, Employer Sponsored Day Care, Infant/Toddler Care, Resource and Referral Services, Intergenerational Care, Respite/Sick Care, and other settings as they develop.

The two-year program, requiring 63 credits, leads to the Associate in Applied Science degree Technical Certificates are also available in specialized areas.

Programs and courses are offered in Fort Wayne, Muncie, Richmond, and Indianapolis. In addition, selected courses may be available in other regions.

## **ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM**

### **Technical Courses (39 Credits)**

<b>Prefix</b>	<b>No.</b>	<b>Title</b>	<b>Semester Credits</b>
CHD	101	Introduction to Early Childhood Education	4
CHD	102	Child Growth and Development I	3
CHD	103	Health, Safety and Nutrition	3
CHD	104	Practicum I	3
CHD	105	Seminar I	2
CHD	108	Curriculum I	4
CHD	112	Child Growth and Development II	3
CHD	201	Curriculum II	4
CHD	203	Practicum II	3
CHD	204	Seminar II	2
CHD	205	Children's Literature and Language Arts	3
CHD	207	Practicum III	3
CHD	208	Seminar III	2



## General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II	3
MAT	107	Math of Finance	3
SCI	101	Physical Science or	
SCI	109	Biology	3
SOC	101	Human Relations	3
SOC	102	Introduction to Psychology or	
SOC	103	Intercultural Relations	3

## Regional Courses (6 Credits)

Total Credits 6  
63

# CHILD DEVELOPMENT COURSE DESCRIPTIONS

## CHD 101—INTRODUCTION TO EARLY CHILDHOOD EDUCATION

4 Credits

A basic introduction to philosophy of early childhood education. Includes theories of discipline, parent involvement, self-concept, and an overview of various early childhood settings. (Lecture, field trips, and observation.)

## CHD 102—CHILD GROWTH AND DEVELOPMENT I

3 Credits

Introductory study of the physical, social, emotional and cognitive development of the young child, conception to age three, as well as quality care and education of infants and toddlers. (Lecture and observation.)

## CHD 103—HEALTH, SAFETY AND NUTRITION

3 Credits

Analysis of basic safety, health, and nutrition needs. Applications as they relate to early childhood programs are emphasized.

## CHD 104—PRACTICUM I

3 Credits

Provides opportunity for practical experience through observation and supervised participation in child care settings. Successful completion of the practicum is required to advance to Practicum II and III.

## CHD 105—SEMINAR I

2 Credits

Companion course to Practicum I. Overview of Child Development Associate (CDA) competencies and observation techniques and skills.

## CHD 108—CURRICULUM I

4 Credits

Examines materials, methods, and teaching for providing creative experiences for the young child. Offers appropriate music, movement, art, drama, etc., experiences for use in early childhood settings. Reviews theories of development of the young child.

## CHD 112—CHILD GROWTH AND DEVELOPMENT II

3 Credits

A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the young child, 3-8 years.

## CHD 201—CURRICULUM II

4 Credits

Students will review cognitive theories to develop appropriate practices in activities as they relate to problem solving skills, math, science, and social studies in early childhood settings. Reviews multi-cultural education.

## CHD 202—ISSUES AND RESOURCES

3 Credits

Covers current early childhood issues, ethical and legal responsibilities, and working relationships with families and community resources. Analyzes the caregiver's role as a member of a multidisciplinary team.

## CHD 203—PRACTICUM II

3 Credits

Provides opportunity for practical experience through observation and supervised participation in child care

settings. Successful completion of the practicum is required to advance to Practicum III.

**CHD 204—SEMINAR II**

2 Credits

Companion course to Practicum II. Further development of observation skills and techniques will be explored. An examination of positive guidance techniques to meet individual and group needs is presented.

**CHD 205—CHILDREN'S LITERATURE AND LANGUAGE ARTS**

3 Credits

Provides for understanding of the development and acquisition of language in order to provide materials and activities for optimum growth. Students will explore and evaluate literature for young children. Introduces audiovisual material, methods, techniques, and various types of equipment which are utilized in early childhood programs.

**CHD 206—EARLY CHILDHOOD ADMINISTRATION**

3 Credits

Introduces principles of managing a child care program. Emphasizes the role of the manager to include personnel and program administration and fiscal management. Client-community relations are explored.

**CHD 207—PRACTICUM III**

3 Credits

Provides opportunity for practical experience through observation and supervised participation in child care settings.

**CHD 208—SEMINAR III**

2 Credits

Companion course to Practicum III. The integration of skills is employed to develop a thematic teaching unit.

**CHD 210—INTRODUCTION TO IN-HOME CARE**

4 Credits

Offers an overview of child care offered in a home-like setting. The course includes providing a safe, healthy learning environment in the home setting, parent-provider relationships, and recommendations for developing a professional support system.

**CHD 211—SCHOOL AGE PROGRAMMING**

3 Credits

Examines materials, methods, and teaching styles for providing creative experiences for the school age child. Offers experiences such as appropriate music, movement, art, and drama for use in school age child care settings. Reviews theories of adolescent growth and development.

**CHD 212—ADOLESCENT CHILD GROWTH AND DEVELOPMENT**

3 Credits

A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the child, 8-15 years.

**CHD 213—INFANT/TODDLER CARE PROGRAMMING**

3 Credits

A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the child 0-36 months.

**CHD 214—FAMILY DEVELOPMENT**

3 Credits

Examines the stages of the family life cycle and interpersonal relationships among family members.

**CHD 215—CHILD DEVELOPMENT ASSOCIATE PREPARATION**

4 Credits

Course meets requirements of the Council for Early Childhood Professional Recognition for academic preparation for the Child Development Associate credential. Course will provide students with the technical knowledge to support competent performance in a child care setting. The course is organized around the CDA competencies.

**CHD 281-293—SPECIAL TOPICS IN CHILD DEVELOPMENT**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# EARLY CHILDHOOD DEVELOPMENT

The Associate in Science degree program in Early Childhood Development is designed for students who wish to earn a career-oriented degree at Ivy Tech and who plan to continue their education to a baccalaureate degree in Early Childhood/Elementary Education.

Employment opportunities upon completion of the A.S. degree are the same as those described under the A.A.S. Child Development program. Students who complete the baccalaureate degree will qualify for certification as elementary teachers in the State of Indiana. The program is offered at Richmond.

## ASSOCIATE IN SCIENCE DEGREE PROGRAM

### Technical Courses (31 Credits)

Prefix	No.	Title	Semester Credits
ECD	101	Introduction to Early Childhood Education	4
ECD	102	Child Development I	3
ECD	103	Child Development II	3
ECD	105	Curriculum I	4
ECD	106	Early Childhood Issues and Resources	3
ECD	201	Advanced Practicum I	3
ECD	202	Seminar I	2
ECD	203	Advanced Practicum II	3
ECD	204	Seminar II	2
ECD	208	Curriculum II	4

### General Education Requirements (31 Credits); to be completed at a four-year institution.

Prefix	No.	Title	
		English	3
		Public Speaking	3
		Children's Literature	3
		Math For Elementary Teachers I	3
		Computer Literacy for Education Majors	3
		Earth Science for Elementary Teachers	4
		Basic Science Skills	3
		American History or U.S. History	3
		Introduction to Music Fundamentals	3
		Crafts and Design	3
		Total Credits	62

# EARLY CHILDHOOD DEVELOPMENT COURSE DESCRIPTIONS

## **ECD 101—INTRODUCTION TO EARLY CHILDHOOD EDUCATION**

4 Credits

A basic introduction to philosophies of early childhood education. Includes theories of discipline, parent involvement, self-concept, and an overview of various early childhood settings. (Lecture, field trips, and observation.)

## **ECD 102—CHILD DEVELOPMENT I**

3 Credits

Introductory study of the physical, social, emotional and cognitive development of the young child, conception to age three, as well as quality care and education of infants and toddlers. The influence of cultural environment and individual differences in development are considered. (Lecture and observation.)

## **ECD 103—CHILD DEVELOPMENT II**

3 Credits

A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the young child, four to eight years.

## **ECD 105—CURRICULUM I**

4 Credits

Examines materials, methods, and teaching for providing creative experiences for the young child. Offers appropriate music, movement, art, drama, etc. experiences for use in early childhood settings. Reviews and analyzes theories of development of the young child.

## **ECD 106—EARLY CHILDHOOD ISSUES AND RESOURCES**

3 Credits

Covers current issues, ethical and legal responsibilities and working relationships with families and community resources. Analyzes the caregiver's role as a member of a multidisciplinary team.

## **ECD 201—ADVANCED PRACTICUM I**

3 Credits

Provides opportunity for practical experience through

observation and supervised participation in child care settings. Successful completion of the practicum is required to advance to Practicum II.

## **ECD 202—SEMINAR I**

2 Credits

Companion course to Advanced Practicum I. Overview of Child Development Association (CDA) competencies and observation techniques and skills. An examination of positive guidance techniques to meet individual and group needs is presented.

## **ECD 203—ADVANCED PRACTICUM II**

3 Credits

Provides the final opportunity for practical experience through observation and supervised participation in child care settings.

## **ECD 204—SEMINAR II**

2 Credits

Companion course to Advanced Practicum II. The integration of skills is employed to develop a thematic teaching unit.

## **ECD 208—CURRICULUM II**

4 Credits

Students will review cognitive theories to develop appropriate practices in activities as they relate to problem solving skills, math, science, and social studies in early childhood settings. Reviews multi-cultural education.

## **ECD 281-293—SPECIAL TOPICS IN EARLY CHILDHOOD DEVELOPMENT**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# DENTAL ASSISTANT

Students in the Dental Assistant Program receive instruction in preparing patients for treatment and in assisting chairside as the dentist examines and treats patients. The dental assistant will expose and process X-ray films, sterilize instruments, provide oral health instruction, assist with record keeping and other office management practices. Students gain necessary knowledge and skills in general education, basic science, dental anatomy and materials, chairside assisting, laboratory techniques, radiology and basic office procedure. In addition to academic and clinical course work on campus, students are provided with practical experience in dental offices under the supervision of college personnel and dental office personnel.

A one-year program, requiring 47 credits, leads to a Technical Certificate. Graduates are eligible to take the certification exam administered by the Dental Assisting National Board, Inc. The program is available at Lafayette.

## TECHNICAL CERTIFICATE PROGRAM

### Technical Courses (41 Credits)

Prefix	No.	Title	Semester Credits
DEN	101	Basic Integrated Sciences	3
DEN	102	Dental Materials and Laboratory I	3
DEN	103	Dental Anatomy	3
DEN	104	Dental Radiography	3
DEN	105	Preclinical Practice I	4
DEN	106	First Aid/Pharmacology	3
DEN	107	Dental Office Management	3
DEN	108	Preventive Dentistry/Diet and Nutrition	3
DEN	109	Dental Materials and Laboratory II	3
DEN	110	Dental Radiography Laboratory	1
DEN	111	Preclinical Practice II	4
DEN	112	Clinical Practice I	1
DEN	113	Clinical Practice II	7

### General Education Courses (6 Credits)

Prefix	No.	Title	
SOC	101	Human Relations	3
DEN	114	Health Office Communications	<u>3</u>
Total Credits			47

## DENTAL ASSISTANT COURSE DESCRIPTIONS

### DEN 101—BASIC INTEGRATED SCIENCES

3 Credits

Examines the human body as an integrated unit; includes anatomy, physiology, medical terminology.

ulation, necessary armamentarium used, and technical duties dental assistants can perform. Stresses clinical behavior of materials and biological factors of importance to dental assistants.

### DEN 102—DENTAL MATERIALS AND LABORATORY I

3 Credits

Properties of dental materials, proper modes of manip-

### DEN 103—DENTAL ANATOMY

3 Credits

Focuses on oral, head and neck anatomy, basic

embryology, histology, tooth morphology, and charting methods related to the dental field. Includes dental anomalies, pathological conditions, and terminology relevant to effective communication. Also drawing and carving of teeth.

#### **DEN 104—DENTAL RADIOGRAPHY**

3 Credits

Principles, benefits, effects and control of X-Ray production. Covers history, radiation sources, modern dental radiographic equipment and techniques, anatomical landmarks, dental films and processing. Emphasizes avoidance of errors in exposing and processing dental radiographs.

#### **DEN 105—PRECLINICAL PRACTICE I**

4 Credits

Introduces qualifications and legal-ethical requirements of the dental assistant. History and professional organizations are surveyed. Emphasizes clinical environment and responsibilities, housekeeping, chairside assisting, equipment and instrument identification, tray setups, sterilization, characteristics of microorganisms and disease control.

#### **DEN 106—FIRST AID/PHARMACOLOGY**

3 Credits

Surveys the most commonly utilized and required first aid measures for emergencies. Examines proper techniques and procedures as well as equipment, medications, and position care of the patient. Reviews anatomy/physiology, and cardiopulmonary rescue as provided by the American Heart Association.

#### **DEN 107—DENTAL OFFICE MANAGEMENT**

3 Credits

Principles of administrative planning, bookkeeping, filing, recall programs, banking, tax records, computer software, insurance, office practice, and management as related to the dental office. Attention is given to techniques of appointment control, record keeping, and credit and payment plans.

#### **DEN 108—PREVENTIVE DENTISTRY/DIET AND NUTRITION**

3 Credits

Emphasizes the importance of preventive dentistry and effects of diet and nutrition on dental health. Presents techniques of assisting patients in the maintenance of good oral hygiene.

#### **DEN 109—DENTAL MATERIALS AND LABORATORY II**

3 Credits

Continues Dental Materials and Laboratory I.

#### **DEN 110—DENTAL RADIOGRAPHY LABORATORY**

1 Credit

Course provides students with opportunity to use manual skills on actual patients, previously practiced on mannequins in Dental Radiography.

#### **DEN 111—PRECLINICAL PRACTICE II**

4 Credits

A continuation of Preclinical Practice I. Anesthesia is presented. The following dental specialties are presented: oral and maxillofacial surgery, periodontics, endodontics, pediatric dentistry, orthodontics, prosthodontics, and dental public health. Terminology relevant to this subject is stressed.

#### **DEN 112—CLINICAL PRACTICE I**

1 Credit

Applications of manual skills, knowledge of dental materials and clinical procedures in a simulated office situation with actual patients.

#### **DEN 113—CLINICAL PRACTICE II**

7 Credits

Provides chairside dental assisting experience in private dental practices in both general and specialized areas of dentistry. Includes weekly seminars as an integral part of the learning experience.

#### **DEN 114—HEALTH OFFICE COMMUNICATIONS**

3 Credits

Health auxiliary personnel must have communication skills to effectively function in their chosen field. Communication is the key to successful business relationships. Health care workers must be able to communicate productively with patients, co-workers, employers, and various business associates if they are to meet the demands of today's dental market.

#### **DEN 281-293—SPECIAL TOPICS IN DENTAL ASSISTANT TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# FOOD SERVICE TECHNOLOGY

The Food Service Technology program prepares students for careers in regional or national food establishments or in health care facilities and institutions. Students are trained to select, purchase, prepare, and produce food in quantity. Included are courses in volume purchasing and preparation of foods, supervision of food service operations, sanitation and safety, operation and scheduling of food production and proper service techniques, and marketing and merchandising of the establishment product. Students may elect courses in nutrition, cost controls, beverage management, bakery products, and catering.

A one-year program, requiring 36 credits, leads to a Technical Certificate. The program is offered in Richmond.

## TECHNICAL CERTIFICATE PROGRAM

### Technical Courses (24 Credits)

Prefix	No.	Title	Semester Credits
FST	101	Introduction to Food Preparation	3
FST	102	Food Service Equipment Operations	3
FST	103	Food Service Sanitation and Safety	3
FST	104	Food Production Methods and Procedures	3
FST	105	Quality Service Standards	3
FST	106	Application of Food Service Production I	3
FST	107	Fundamentals of the Catering Business	3
FST	108	Application of Food Service Production II	3

### General Education Courses (9 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
SOC	101	Human Relations	3
MAT	150	Technical Mathematics I	3

### Regional Courses (3 Credits)

	<u>3</u>
Total Credits	36

# FOOD SERVICE TECHNOLOGY COURSE DESCRIPTIONS

## **FST 101—INTRODUCTION TO FOOD PREPARATION**

3 Credits

An introduction to preparation principles, nutrition, and menu writing. Emphasis is on basic food preparation techniques, food interactions during cooking and storage, and evaluation of finished products.

## **FST 102—FOOD SERVICE EQUIPMENT OPERATIONS**

3 Credits

An in-depth study of food service equipment including cleaning, preventive maintenance, specifications, and legal requirements, with emphasis on usage.

## **FST 103—FOOD SERVICE SANITATION AND SAFETY**

3 Credits

Examines sanitation procedures for the elimination of food-borne illnesses and food contamination in food service facilities. Stresses accident prevention through proper safety methods.

## **FST 104—FOOD PRODUCTION METHODS AND PROCEDURES**

3 Credits

Application of food production methods and procedures with emphasis on soups, sauces, and gravies.

## **FST 105—QUALITY SERVICE STANDARDS**

3 Credits

Skill development in the techniques of serving, clearing and cashing in dining operations.

## **FST 106—APPLICATION OF FOOD SERVICE PRODUCTION I**

3 Credits

Applications of the principles of pantry production, baking, vegetable and fruit preparation, pastries, and breakfast cookery.

## **FST 107—FUNDAMENTALS OF THE CATERING BUSINESS**

3 Credits

An introduction to the fundamentals of owning and operating a small catering business to include personal, legal, and operational requirements.

## **FST 108—APPLICATION OF FOOD SERVICE PRODUCTION II**

3 Credits

Application of production methods and procedures for meat, seafood, poultry, dairy products, and hot hors d'oeuvres.

## **FST 109—COMPUTER FOOD SERVICE SPREADSHEETS**

3 Credits

An introduction to microcomputers with specific food service applications. Basic procedures for food service spreadsheet applications involving analysis and reporting using Lotus 1-2-3 or compatible software.

## **FST 110—PROFESSIONAL DINING ROOM SERVICE**

3 Credits

This course provides students with skills in French and Russian service techniques. Included are table-side cooking, wine and beverage service.

## **FST 281-293—SPECIAL TOPICS IN FOOD SERVICE TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# HUMAN SERVICES TECHNOLOGY

The Human Services program offers students the opportunity to become Human Services generalists and/or to concentrate in the areas of Substance Abuse, Gerontology, Criminal Justice, or Child Development.

As a Human Services professional, one reaches out to individuals, to families, and to communities. The Human Services program provides the broad understanding to help others meet their psychological, social, and environmental needs. The Human Services Generalist may find employment in a variety of settings such as community centers, group homes, substance abuse centers, and nursing homes. All enrolled in the program take a core of Human Services courses.

Those who study Human Services with a focus on Substance Abuse may find positions in substance abuse centers (residential, detox, and hospitals) as counselors or residents-in-training. (The program is certified by Indiana Counselors Association on Alcohol Abuse, ICAADA.) Those who focus on Gerontology may find jobs in adult day care centers, senior citizens centers and extended care facilities.

Program objectives include training the entry-level worker, providing education and training to upgrade the skills and knowledge of those currently employed, and providing development and enhancement. Throughout the program students examine their values and attitudes which reflect upon their interactions with others.

The Associate of Applied Science Degree requires 64 credits. The program is offered in Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (34 Credits)

Prefix	No.	Title	Semester Credits
HST	101	Introduction to Human Services	3
HST	102	Helping Relationship Techniques	3
HST	103	Interviewing and Assessment	3
HST	201	Internship I	5
HST	202	Internship II	5
HST	203	Internship Seminar I	3
HST	204	Internship Seminar II	3
HST	205	Behavioral/Reality Techniques	3
HST	206	Group Process and Skills	3
HST	207	Program Planning/Policy	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
SOC	102	Introduction to Psychology	3
SOC	104	Introduction to Sociology	3
SOC	105	Introduction to Political Science	3
MAT	107	Math of Finance	3

### Regional Courses (12 credits)

	<u>12</u>
Total Credits	64

# HUMAN SERVICES TECHNOLOGY COURSE DESCRIPTIONS

## **HST 101—INTRODUCTION TO HUMAN SERVICES**

3 Credits

Exploration of the history of human services, career opportunities and roles of the human service worker. Focuses on target populations and community agencies designed to meet the needs of various populations.

## **HST 102—HELPING RELATIONSHIP TECHNIQUES**

3 Credits

Provides opportunities to increase effectiveness in helping people. Examines the helping process in terms of skills, stages, and issues involved in a helping relationship. Introduces major theories of helping.

## **HST 103—INTERVIEWING AND ASSESSMENT**

3 Credits

Develops skills in interviewing and provides a base for students to build personal styles. Introduces a variety of assessment approaches and treatment planning. Case studies and recording exercises are utilized.

## **HST 104—CRISIS INTERVENTION**

3 Credits

This course is designed as a beginning training unit for people who anticipate or are presently working with people in crisis situations.

## **HST 105—CRIMINAL JUSTICE SYSTEMS**

3 Credits

This course introduces the study of crime and criminals and how society is affected.

## **HST 106—PHYSIOLOGY OF AGING**

3 Credits

This course will focus on the physical changes and common pathologies associated with the aging process. It also will focus on the psychological and social implications of such changes for human behavior. Throughout the course, there will be a focus on health promotion and disease prevention during the later years.

## **HST 107—HUMAN SERVICES TOPICAL SEMINAR**

3 Credits

Discusses topics of current interest in human services. Attention is given to special interest projects for students in Human Services. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

## **HST 108—PSYCHOLOGY OF AGING**

3 Credits

Covers the major behavioral changes in adulthood and aging. Students explore their own feelings about aging as well as societal attitudes.

## **HST 109—FAMILIES IN AMERICAN CULTURE**

3 Credits

The impact of change on the role and function of the modern family, the nature of the socialization process, and socioeconomic, cultural and ethnic factors that nurture or inhibit the family's capacity to function are areas of study included in this course.

## **HST 111—LONG-TERM CARE ACTIVITY DIRECTOR**

3 Credits

Explores the philosophy and investigates the development of therapeutic activity programs for residents living in nursing homes. It focuses on offering activities which will meet an individual's physical, social, and emotional needs.

## **HST 112—RECREATION FOR SPECIAL POPULATIONS**

3 Credits

Studies the nature and etiology of impairments including developmental disabilities, mental illness, physical disabilities and geriatrics, and their potential impact upon an individual's ability to participate in recreational activities. Techniques needed to conduct a recreation program which allows successful participation by an individual with a disability will be explored.

## **HST 113—PROBLEMS OF SUBSTANCE ABUSE IN SOCIETY**

3 Credits

Provides basic information about alcohol and drugs as well as the various laws which pertain to them. It also explores current attitudes and practices which pertain to alcohol and drug use, misuses, and dependence.

## **HST 114—SOCIAL SERVICES IN LONG-TERM CARE**

3 Credits

A specialized course which gives practical and useful information about aging and institutionalization. It focuses on the role of social services within the long-term care facility.

### **HST 115—APPLIED BEHAVIORAL PSYCHOLOGY**

3 Credits

A study of unique capacities and personal strengths of self and others. Emphasis is on discovering, clarifying, and affirming individual potential for living more fully. Students discuss the complex nature of human development, human behavior and related social problems.

### **HST 116—INTRODUCTION TO MENTAL RETARDATION/DEVELOPMENT DISABILITIES**

3 Credits

This course provides the participant with background knowledge of the field of mental retardation/developmental disabilities and issues pertinent to the field.

### **HST 117—INTRODUCTION TO RESIDENTIAL TREATMENT**

3 Credits

Introduces information, skills, and attitudes necessary to become an effective worker in residential treatment. Explores the therapeutic "milieu", basic developmental needs, planning and use of activities, and issues related to the team approach. Discusses and demonstrates observation and recording of behavior.

### **HST 118—INTRODUCTION TO LONG-TERM CARE**

3 Credits

Explores the history of health care provided outside the home and offers an overview of long-term health care facilities. Includes rules and regulations of nursing homes, resident rights, legislation, and physical plant requirements.

### **HST 119—INTERDISCIPLINARY TEAM MANAGEMENT**

3 Credits

Explores principles and relationships of the interdisciplinary team, the various departments which may compose the team, and the services which the department provides.

### **HST 120—HEALTH AND AGING**

3 Credits

A holistic overview of the physical, psychological and social needs of individuals who live in extended care facilities. Examines effective treatment modalities to meet the residents' various needs.

### **HST 121—ISSUES OF LONG-TERM CARE**

3 Credits

An overview of various issues to familiarize students with responsibilities of nursing home administrators.

Management styles, models, quality circles and personal improvement are covered.

### **HST 201—INTERNSHIP I**

5 Credits

A field work experience in social, educational, law enforcement (corrections) or other community service organization. The student will be supervised by a practicum site professional and a college faculty member. Fourteen-sixteen hours of work experience each week.

### **HST 202—INTERNSHIP II**

5 Credits

Continuation of Internship I. Location of this practicum experience will be determined cooperatively by the student and the Human Services Department. Fourteen-sixteen hours of work experience each week.

### **HST 203—INTERNSHIP SEMINAR I**

3 Credits

Discussion and analysis in small groups of the human services practicum experience. There will be special learning objectives related to the kind of work the student will do in an organization after completion of the program.

### **HST 204—INTERNSHIP SEMINAR II**

3 Credits

Continuation of Internship Seminar I with different learning objectives. These objectives will be related to the work the student will do after completion of the program.

### **HST 205—BEHAVIORAL/REALITY TECHNIQUES**

3 Credits

Focuses on theories of behavioral and reality approaches. Develops understanding of terms and practical applications of the behavioral and reality approaches used in working with people.

### **HST 206—GROUP PROCESS AND SKILLS**

3 Credits

A study of group dynamics, issues, and behavior. Includes group functioning and leadership, guidelines on working effectively with a co-leader, and practical ways of evaluating the group process.

### **HST 207—PROGRAM PLANNING POLICY**

3 Credits

Deals with the components of administration of human service agencies. Addresses practitioner skills needed

to be an administrator or supervisor. Discusses social policy issues and impact on human services.

### **HST 208—TREATMENT MODELS OF SUBSTANCE ABUSE**

3 Credits

Describes the various treatment models used with chemically dependent clients. Discussion centers on intervention and treatment models for chemical dependency and their role in the recovery process.

### **HST 209—COUNSELING ISSUES**

3 Credits

Explores practice strategies for the worker who counsels chemically dependent clients.

### **HST 210—CODEPENDENCY**

3 Credits

This course presents the definition of codependency and the issues related to it. Students learn skills and techniques to confront codependent behavior.

### **HST 281-293—SPECIAL TOPICS IN HUMAN SERVICES TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



## MEDICAL ASSISTANT

The graduate of the Medical Assistant Program is a professional, multi-skilled person dedicated to assisting in patient care management primarily in a physician's office. The practitioner performs administrative and clinical duties and may manage emergency situations, facilities, and/or personnel. Competence in the field also requires that a Medical Assistant display professionalism, communicate effectively, and provide instruction to patients. A required externship under the direct supervision of a physician provides valuable on-the-job experience.

Graduates of the Medical Assistant Program will be prepared to take the Certification Examination of the American Association of Medical Assistants (AAMA) and the American Medical Association (AMA).

The two-year Associate in Applied Science program requires 65 credits for completion. Technical Certificates are also available. Programs are offered in Columbus, Evansville, Fort Wayne, Anderson, Richmond, Indianapolis, Kokomo, Lafayette, Madison, Muncie, Sellersburg, South Bend, Terre Haute, and Valparaiso.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (44 Credits)

Prefix	No.	Title	Semester Credits
MEA	101	Medical Terminology	3
MEA	102	First Aid and CPR	2
MEA	103	Medical Law and Ethics	1
MEA	104	Medical Assisting-Administrative	3
MEA	111	Medical Typing and Transcription	3
MEA	112	Medical Assisting-Clinical	4
MEA	113	Pharmacology	3
MEA	114	Medical Assisting Laboratory Techniques	3
MEA	115	Medical Insurance	2
MEA	120	Medical Assisting-Clinical Externship	3
MEA	121	Medical Assisting-Administrative Externship	3
MEA	201	Medical Word Processing-Transcription	2
MEA	202	Medical Assisting-Advanced Clinical	4
MEA	203	Disease Conditions	3
MEA	204	Medical Office Management	2
CIS	101	Introduction to Microcomputers	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	107	Math of Finance	3
SOC	102	Introduction to Psychology	3
SCI	113	Anatomy and Physiology I	3
SCI	115	Anatomy and Physiology II	3

### Regional Courses (3 Credits)

	<u>3</u>
Total Credits	65

# MEDICAL ASSISTANT COURSE DESCRIPTIONS

## MEA 101—MEDICAL TERMINOLOGY

3 Credits

Addresses basic terminology required of the allied health professional. Greek and Latin prefixes are presented, as well as suffixes, word roots, and combining forms. Emphasis is on forming a solid foundation for a medical vocabulary including meaning, spelling, and pronunciation. Medical abbreviations, signs, and symbols are included.

## MEA 102—FIRST AID AND CPR

2 Credits

Provides students with information necessary to recognize emergency situations, know the proper course of action with different types of emergencies, and apply appropriate first aid, including CPR.

## MEA 103—MEDICAL LAW AND ETHICS

1 Credit

Presents ethics of medicine and medical practice as well as legal requirements and implications for allied health professions.

## MEA 104—MEDICAL ASSISTING—ADMINISTRATIVE

3 Credits

This course provides a basic understanding of the administrative duties and responsibilities pertinent to medical offices. It also develops communication skills specifically directed toward a medical office and the role of the professional Medical Assistant as a member of the health care team. It includes instruction in medical correspondence and records, case histories of patients, filing, financial administration, telephone procedures, appointment scheduling, receptionist duties, processing mail, pegboard accounting, and care of facilities and equipment. It also includes development of desirable personality traits, interpersonal relationships and attitudes within the medical office.

## MEA 111—MEDICAL TYPING AND TRANSCRIPTION

3 Credits

Focuses on improving typewriting ability in the medical field, including transcription with emphasis on production, speed and accuracy. Course includes formatting, typing, and transcription of articles, medical reports, case histories, and correspondence using medical terminology.

## MEA 112—MEDICAL ASSISTING—CLINICAL

4 Credits

Provides students the opportunity to become familiar with clinical duties and to gain the skills needed to perform them. Includes: vital signs, asepsis, sterilization, medications, ECGs, X-ray, nutrition, physical therapy, and other technical skills needed to assist the physician.

## MEA 113—PHARMACOLOGY

3 Credits

The most common medications in current use are discussed according to body systems with emphasis on classifications, uses, routes of administration, dosages, interactions, incompatibilities, and side effects. Also addressed are special precautions, legal aspects, and patient education.

## MEA 114—MEDICAL ASSISTING LABORATORY TECHNIQUES

3 Credits

Prepares students to perform various basic laboratory procedures to include preparation of patients, collecting and preparing appropriate specimens, familiarization with purposes and expected norms of laboratory test results. Course also includes current safety and quality control standards.

## MEA 115—MEDICAL INSURANCE

2 Credits

An overview of medical insurance programs with skills developed in handling insurance forms, CPT and ICD-9-CM Coding, and reports as applied to the medical office.

## MEA 120—MEDICAL ASSISTING-CLINICAL EXTERNSHIP

3 Credits

Provides the opportunity to discuss and perform clinical procedures under supervision, with learning experiences obtained in selected physicians' offices, clinics, or hospitals.

## MEA 121—MEDICAL ASSISTING-ADMINISTRATIVE EXTERNSHIP

3 Credits

Course provides opportunities to observe, perform, and discuss various administrative competencies under supervision, with learning experiences obtained in selected physicians' offices, clinics, or hospitals.

### **MEA 201—MEDICAL WORD PROCESSING-TRANSCRIPTION**

2 Credits

Advances skills and knowledge of medical dictation, machine transcription, and use of word processing. Includes typing medical reports, terminology, and correspondence.

### **MEA 202—MEDICAL ASSISTING—ADVANCED CLINICAL**

4 Credits

Advances the knowledge and skills enabling the student to assist in clinical management in the medical and surgical specialties. Addresses health services in the community which are directed toward prevention of disease and maintenance and restoration of health.

### **MEA 203—DISEASE CONDITIONS**

3 Credits

Presents the basic concepts of diseases, their courses and functional disturbances as they relate to body systems. Includes the precipitating risk factors and appropriate methods of patient education regarding various disease processes.

### **MEA 204—MEDICAL OFFICE MANAGEMENT**

2 Credits

An in-depth study of various influences on office functions providing a background for organization and management of a physician's office. Includes government and professional sources for consultation.

### **MEA 211—ECG INTERPRETATION**

3 Credits

Covers basic cardiovascular anatomy and physiology; basic electrophysiology; ECG techniques to define, identify and analyze ECG measurements; ECG holter and stress testing instrumentation; nomenclature and derivations of ECG leads.

### **MEA 212—PHLEBOTOMY**

3 Credits

Presents the principles and practices of laboratory specimen collection and processing. Also covers medical terminology, infection control, patient identification, anatomy and physiology, anticoagulants, blood collection, specimen processing, and interpersonal skills.

### **MEA 213—ADVANCED INSURANCE CODING**

3 Credits

Introduces the medical office administrator to codes

necessary to bill insurance claims and provides experience in coding claim forms using the correct combination of codes to maximize reimbursement.

### **MEA 214—ADVANCED FIRST AID AND CPR**

3 Credits

Provides students with information necessary to recognize emergency situations, know the proper course of action with different types of emergencies and apply appropriate first aid. Handling of victims of hazardous materials accidents will be addressed. CPR including one and two rescuer adult, infant, and child resuscitation will be taught.

### **MEA 215—ADVANCED MEDICAL TERMINOLOGY**

3 Credits

Includes more detailed and advanced study of the derivatives of medical terms, symbols, and signs. Presents an in-depth study of the correlation between medical vocabulary and the application of those terms to the anatomy and physiology of the body, related diseases, conditions, and treatment.

### **MEA 216—NUTRITION**

2 Credits

Presents the importance of a balanced diet; methods of evaluating a diet; the basic four food groups; the functions, requirements and food sources of fats, proteins, carbohydrates, vitamins, and minerals; and the deficiency diseases. Introduces meal planning, nutrition for various age groups, religious and nationality food habits, and diet therapy. Explains special diets for diabetes, disease of the GI tract, urinary tract, blood, cardiovascular system, obesity, cancer, allergy, and pregnancy.

### **MEA 217—GERONTOLOGY**

3 Credits

Presents a multidisciplinary study of the sociological, psychological, and physiological aspects of aging. Included will be patient education and the impact all facets of aging have on the total person.

### **MEA 221—SEMINAR I**

1 Credit

Discusses topics of current interest in the medical assisting profession. Attention is given to special interest projects for students in the Medical Assistant program. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

**MEA 222—SEMINAR II**

2 Credits

Discusses topics of current interest in the medical assisting profession. Attention is given to special interest projects for students in the Medical Assistant program. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

**MEA 223—SEMINAR III**

3 Credits

Discusses topics of current interest in the medical assisting profession. Attention is given to special interest projects for students in the Medical Assistant program. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

**MEA 281-293—SPECIAL TOPICS IN MEDICAL ASSISTANT TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the

opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

**MEA 299—COMPREHENSIVE CERTIFICATION REVIEW**

3 Credits

This course is designed to review fundamentals and principles of medical assisting, thereby preparing the student to sit for the certification examination upon graduation from the program. Administrative, clinical, and general information is covered. Testing procedures are addressed.



# MEDICAL LABORATORY TECHNICIAN

The Medical Laboratory Technician program is designed to prepare graduates to work in clinics, physicians' offices, hospitals and research laboratories as medical laboratory technicians. Medical laboratory technicians perform laboratory procedures, define and solve associated problems, and use quality control techniques to aid in the diagnosis, treatment, and monitoring of patients. Courses in bacteriology, parasitology, chemistry, hematology, immunology, anatomy, physiology, and immunohematology provide both theory and practical applications.

The two-year program requires completion of 69 credits. Programs are offered in South Bend and Terre Haute.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (47 Credits)

Prefix	No.	Title	Semester Credits
MLT	101	Fundamentals of Laboratory Techniques	3
MLT	102	Routine Analysis Techniques	3
MLT	201	Immunology Techniques	3
MLT	202	Immunohematology Techniques	3
MLT	203	Instrumentation	2
MLT	204	Microbiology Techniques	4
MLT	205	Hematology Techniques I	3
MLT	206	Hematology Techniques II	3
MLT	207	Chemistry Techniques I	3
MLT	208	Chemistry Techniques II	3
MLT	209	Routine Analysis Applications	1
MLT	210	Hematology Applications	3
MLT	211	Microbiology Applications	4
MLT	212	Immunology Applications	1
MLT	213	Immunohematology Applications	3
MLT	214	Chemistry Applications	4
MLT	215	Parasitology and Mycology Techniques	1

### General Education Courses (16 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
SOC	101	Human Relations	3
MAT	101	Algebra I	3
MEA	103	Medical Law and Ethics	1
SCI	107	Chemistry	3
SCI	113	Anatomy & Physiology I	3

### Regional Courses (6 Credits)

	<u>6</u>
Total Credits	69

# MEDICAL LABORATORY TECHNICIAN COURSE DESCRIPTIONS

## **MLT 101—FUNDAMENTALS OF LABORATORY TECHNIQUES**

3 Credits

Introduces elementary skills required in the medical laboratory. Subject matter includes laboratory math, quality control, pipetting skills, veinipuncture techniques and microscope skills.

## **MLT 102—ROUTINE ANALYSIS TECHNIQUES**

3 Credits

Principles, practices and clinical laboratory techniques associated with the routine analysis of urine and other body fluids.

## **MLT 196—INTRODUCTION TO PATIENT CARE AND PHLEBOTOMY**

3 Credits

Introduces the health care delivery system, instruction in specimen collection techniques, infection control and safety. Applies communication and stress management concepts.

## **MLT 197—CLINICAL PHLEBOTOMY EXPERIENCE**

3 Credits

Instruction in the practice and demonstration of clinical applications of phlebotomy in the clinical setting.

## **MLT 198—CLINICAL PHLEBOTOMY DISCUSSION**

1 Credit

Students develop the professional socialization process that is necessary to function in a health care setting. Includes a review of routines and special phlebotomy procedures in light of phlebotomist-patient interaction.

## **MLT 201—IMMUNOLOGY TECHNIQUES**

3 Credits

Designed to provide the student with a basic understanding of the principles of the human immunologic system and experience routine serologic testing.

## **MLT 202—IMMUNOHEMATOLOGY TECHNIQUES**

3 Credits

Instruction in the practice, principles, and procedures used for blood banking in the clinical laboratory.

## **MLT 203—INSTRUMENTATION**

2 Credits

Includes instrumentation theory and practices as applied to electronic equipment and automated systems in the medical laboratory.

## **MLT 204—MICROBIOLOGY TECHNIQUES**

4 Credits

Principles of bacteriology including gram negative and positive bacilli and cocci, fastidious organisms and an overview of anaerobic and acid-fast bacteria. Basic laboratory techniques in clinical bacteriology.

## **MLT 205—HEMATOLOGY TECHNIQUES I**

3 Credits

Theory of blood formation and function and routine hematologic procedures, with emphasis on differentiation of normal and commonly encountered abnormal blood cells. Includes basic theory of hemostasis and associated routine coagulation procedures and clinicopathologic correlations.

## **MLT 206—HEMATOLOGY TECHNIQUES II**

3 Credits

Continues the study of principles and procedures in hematology and hemostasis. Introduces procedures which lie outside those routinely performed. Continues cell differentiation, with emphasis on early and less commonly encountered abnormal cells, with associated special stains. Includes clinicopathologic correlations.

## **MLT 207—CHEMISTRY TECHNIQUES I**

3 Credits

Principles, procedures and clinicopathologic correlations in routine chemical analysis of the blood and other body fluids. Provides laboratory experiences in basic methods, selected to develop routine analytical abilities and to promote the ability to recognize sources of error.

## **MLT 208—CHEMISTRY TECHNIQUES II**

3 Credits

Continues the study of principles, procedures and clinicopathologic correlations in the chemical analysis of blood and other body fluids. Introduces procedures which lie outside those routinely performed in the clinical chemistry laboratory, including clinicopathologic correlations.

## **MLT 209—ROUTINE ANALYSIS APPLICATIONS**

1 Credit

Clinical applications of routine urine analysis in the hospital laboratory including physical, chemical and microscopic examination of urine.

**MLT 210—HEMATOLOGY APPLICATIONS**

3 Credits

Knowledge and skill development pertaining to the principles and techniques of hematology in the hospital laboratory.

**MLT 211—MICROBIOLOGY APPLICATIONS**

4 Credits

A study of the applications and clinical practices of microbiology found in the hospital laboratory.

**MLT 212—IMMUNOLOGY APPLICATIONS**

1 Credit

Study and practice in the clinical application of serology in the hospital laboratory.

**MLT 213—IMMUNOHEMATOLOGY APPLICATIONS**

3 Credits

Applications of principles and procedures used in blood banking in the hospital laboratory.

**MLT 214—CHEMISTRY APPLICATIONS**

4 Credits

Designed to study and practice the analytical aspects of clinical chemistry in the hospital laboratory.

**MLT 215—PARASITOLOGY AND MYCOLOGY TECHNIQUES**

1 Credit

Examines the isolation, identification, life cycles and disease processes of pathogenic fungi and parasites.

**MLT 216—ELEMENTARY ORGANIC AND BIOCHEMISTRY**

3 Credits

The chemistry of carbon-containing compounds and the biochemistry of lipids, carbohydrates, proteins, nucleic acids and enzymes. Includes related laboratory procedures.

**MLT 217—ADVANCED CHEMISTRY TECHNIQUES**

1 Credit

Principles and techniques of chemistry procedures outside of routine clinical chemistry testing, such as toxicology, endocrinology, and inborn errors of metabolism.

**MLT 218—CLINICAL PATHOLOGY**

3 Credits

Examines various disease conditions, diagnosis, etiologies, clinical symptoms and related laboratory findings. Includes anemias, leukemias, autoimmune and immunodeficiency disorders.

**MLT 281-293—SPECIAL TOPICS-MEDICAL LABORATORY TECHNICIAN**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# MENTAL HEALTH REHABILITATION TECHNOLOGY

The Mental Health Rehabilitation Technology Program prepares paraprofessionals with the skills necessary for employment in the mental health field. The program develops technicians in activity therapy, work therapy, supportive therapy, and educational and recreational programs. The curriculum offers specialized and technical courses in physical and behavioral client-treatment techniques, management of client living units, recreational and creative activities, client assessment and documentation.

The two-year program, requiring 73 credits, leads to the Associate in Applied Science Degree. Technical Certificates are also available in specialty areas. The program is offered in Fort Wayne and Muncie.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (56 Credits)

Prefix	No.	Title	Semester Credits
MHR	101	Physical Care	3
MHR	102	Behavior Management	3
MHR	103	Physical Systems	3
MHR	104	Clinical I	4
MHR	105	Human Growth and Development	3
MHR	106	Evaluation and Assessment	3
MHR	107	Special Populations Needs and Activities	3
MHR	108	Clinical II	4
MHR	201	Applied Psychology	4
MHR	202	Abnormal Psychology	4
MHR	203	Clinical III	4
MHR	204	Issues and Resources in Mental Health	3
MHR	205	Management and Supervision	3
MHR	206	Legal Aspects	3
MHR	207	Aging Process	3
MHR	208	Chemical Dependency	3
MEA	102	First Aid and CPR	3

### General Education Courses (12 Credits)

Prefix	No.	Title	
MAT	101	Algebra I	3
ENG	101	English Composition	3
SOC	101	Human Relations	3
MEA	113	Pharmacology	3

### Regional Courses (5 Credits)

Total Semester Credits	<u>5</u> 73
------------------------	----------------



## **MENTAL HEALTH REHABILITATION TECHNOLOGY COURSE DESCRIPTIONS**

### **MHR 101—PHYSICAL CARE**

#### **3 Credits**

Designed to provide entry level skills in assessing the physical and emotional status of clients. Skill development in identifying major symptoms and learning therapeutic interventions. Includes recording of vital signs and terminology used in the mental health field.

### **MHR 102—BEHAVIOR MANAGEMENT**

#### **3 Credits**

Introduction to principles and applications of behavior modification. Identifying target behaviors and designing behavioral programs to affect change. Issues of ethics, mental retardation, positive reinforcement, and program evaluation are emphasized.

### **MHR 103—PHYSICAL SYSTEMS**

#### **3 Credits**

Deals with the physical care of clients within a unit. Surveys muscular patterns, body systems, seizures, and first aid.

### **MHR 104—CLINICAL I**

#### **4 Credits**

Experience is gained through internship at a mental health agency. Includes assessment, establishing therapeutic relationships, knowledge of community resources, and learning to function as part of a mental health team. Choice of agency is determined jointly by the student, agency, and clinical supervisor.

### **MHR 105—HUMAN GROWTH AND DEVELOPMENT**

#### **3 Credits**

Introduces cognitive, social and psychological theories of human development from the prenatal period through the adolescent years. Examines human development from the adolescent years through later adulthood. Includes adjustment to the roles of adulthood, the aging process, and death and dying.

### **MHR 106—EVALUATION AND ASSESSMENT**

#### **3 Credits**

How to observe, assess, and document behavior in a professional manner. Skills are obtained in conducting interviews, writing progress notes, and completing intakes. Emphasis is on learning to be accurate, objective, and professional with any assessment of human behavior.

### **MHR 107—SPECIAL POPULATIONS NEEDS AND ACTIVITIES**

#### **3 Credits**

Considers recreation as a vital form of therapy. Skills are acquired in identifying client needs and limitations. Focus is on providing comfortable, therapeutic activities to promote client interaction.

### **MHR 108—CLINICAL II**

#### **4 Credits**

This course allows students to build upon skills and experience gained in Clinical I.

### **MHR 201—APPLIED PSYCHOLOGY**

#### **4 Credits**

A survey of humanistic, behavioristic and psychoanalytic theories of personality as they relate to dealing effectively with the adjustment demands of everyday life. Includes the dynamics of stress and coping, interpersonal relationships, and approaches to personal growth.

### **MHR 202—ABNORMAL PSYCHOLOGY**

#### **4 Credits**

A framework for understanding maladaptive behavior including common misconceptions and accepted definitions. Course details the clinical pictures, causal factors and treatment and outcomes of maladaptive patterns. Areas of assessment, therapy and prevention are also addressed.

### **MHR 203—CLINICAL III**

#### **4 Credits**

Offers supervised clinical experience with emphasis on client interaction and assessment.

### **MHR 204—ISSUES AND RESOURCES IN MENTAL HEALTH**

#### **3 Credits**

Focuses on current issues and resources that impact upon client treatment. Topics such as client rights, advocacy and accurate diagnosis treatment are explored. Legislative issues affecting both the mentally retarded and the mentally ill client will be addressed.

### **MHR 205—MANAGEMENT AND SUPERVISION**

#### **3 Credits**

Needs and methods of providing service to the client

in a residential facility. Skills obtained in identifying specific client needs, as well as managing activities of daily living, therapeutic relationships, and role clarification for the mental health worker as part of a team.

### **MHR 206—LEGAL ASPECTS**

3 Credits

Application of the least restrictive alternative and Public Law/58 to resident programming including JCAH accreditation requirements. Outlines treatment procedures available from policy B-11, including extinction, over-correction, and restrictive techniques and the legal and ethical considerations of each.

### **MHR 207—AGING PROCESS**

3 Credits

Develops understanding of the physical and psychological changes that occur with aging. Adaptations of

nursing techniques, treatment approaches and the environment to meet these changing needs are explored.

### **MHR 208—CHEMICAL DEPENDENCY**

3 Credits

Offers an approach to the assessment and treatment of alcohol and drug addiction, with emphasis on treatment. Attention is given also to theories of alcoholism and drug abuse as a disease.

### **MHR 281-293—SPECIAL TOPICS IN MENTAL HEALTH REHABILITATION TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# ASSOCIATE IN SCIENCE IN NURSING

The Associate in Science in Nursing program is available to the student with no previous nursing education and provides the LPN mobility to continue education to the associate degree level. Graduates of the ASN program are eligible to write the NCLEX-RN to become registered nurses. The program is designed to accommodate students who are entering nursing for the first time as well as LPNs seeking educational mobility. Those interested in the ASN program are encouraged to contact the nearest region offering a program for information concerning course and program offerings.

Under articulation agreements, students complete technical courses at Ivy Tech and may take general education courses at a four-year institution in the region. Upon completion of the program, graduates may seek immediate employment as nurses or choose to transfer their credits to a four-year institution offering a baccalaureate degree. The program is offered at South Bend, Lafayette, Indianapolis, Richmond, Madison, Evansville and is pending in Bloomington and Sellersburg.

## ASSOCIATE IN SCIENCE DEGREE PROGRAM (TRACK I)

### Technical Courses (38 Credits)

Prefix	No.	Title	Semester Credits
NUR	101	Fundamental Nursing Concepts	4
NUR	102	Fundamental Nursing Concepts Practicum	4
NUR	103	Life Cycle Nursing I	4
NUR	104	Life Cycle Nursing I Practicum	4
NUR	201	Life Cycle Nursing II	5
NUR	202	Life Cycle Nursing II Practicum	5
NUR	203	Life Cycle Nursing III	5
NUR	204	Life Cycle Nursing III Practicum	5
NUR	205	Issues in Nursing	2

### General Education Courses

Courses include Chemistry, Anatomy and Physiology, Microbiology, Psychology, Sociology, Lifespan Development, and English (Requires Approval of Program Supervisor)	25-32
Total Credits	63-70

## COMPLETION OPTION PROGRAM, LPNs ONLY

### Technical Courses (38 Credits)

Prefix	No.	Title	Semester Credits
NUR	105	NLN Mobility Profile I, Book 1	5
NUR	106	Transition to Associate Degree Nursing	5
NUR	107	Transition to Associate Degree Nursing Practicum	3
NUR	199	Comprehensive Competency Skill Review	3
NUR	201	Life Cycle Nursing II	5
NUR	202	Life Cycle Nursing II Practicum	5
NUR	203	Life Cycle Nursing III	5
NUR	204	Life Cycle Nursing III Practicum	5
NUR	205	Issues in Nursing	2

**General Education Courses**

Required courses include Chemistry, Anatomy and Physiology, Microbiology, Psychology, Sociology, Lifespan Development, and English

Total Credits 25-32  
63-70

Regions offering the Completion Program *only* will utilize the following format. The Completion Program is only available to LPNs.

**COMPLETION OPTION PROGRAM, LPNs ONLY (TRACK II)****Technical Courses (38 Credits)**

Prefix	No.	Title	Semester Credits
NUR	105	NLN Mobility Profile I, Book 1	5
NUR	199	Comprehensive Competency Skill Review	3
NUR	205	Issues in Nursing	2
NUR	211	Life Cycle Nursing I	5
NUR	212	Life Cycle Nursing II	5
NUR	213	Life Cycle Nursing I Practicum	5
NUR	221	Life Cycle Nursing III	4
NUR	222	Life Cycle Nursing IV	4
NUR	223	Life Cycle Nursing II Practicum	5

**General Education Courses**

Required courses include Chemistry, Anatomy and Physiology, Microbiology, Psychology, Sociology, Lifespan Development and English

Total Credits 25-32  
63-70

**ASSOCIATE DEGREE NURSING COURSE DESCRIPTIONS****NUR 101—FUNDAMENTAL NURSING CONCEPTS (TRACK I)**

4 Credits

Introduces the role of the associate degree nurse and the facts, concepts, and principles underlying the nursing process. Emphasizes physical and psychosocial assessment. Identifies the components of the program philosophy, conceptual framework, and terminal objectives.

**NUR 102—FUNDAMENTAL NURSING CONCEPTS PRACTICUM (TRACK I)**

4 Credits

Provides campus and clinical laboratory experience to utilize the role of the associate degree nursing student employing the nursing process. Simulated/actual client care provides opportunity to develop assessment skills and to initiate beginning level of analyzing, planning, implementing and evaluating therapeutic measures.

**NUR 103—LIFE CYCLE NURSING I (TRACK I)**

4 Credits

Identifies the role of the associate degree nurse in

assisting people in meeting their needs from the child-bearing process through adolescence. The nursing process is utilized to develop the assessment, analysis, planning, implementation, and evaluation of therapeutic measures that promote, maintain, and/or restore health.

**NUR 104—LIFE CYCLE NURSING I PRACTICUM (TRACK I)**

4 Credits

Provides campus and clinical laboratory experience to function in the role of the associate degree nursing student in providing care to clients during the childbearing process through adolescence. The nursing process is employed to promote, maintain, and/or restore health while providing quality nursing care.

**NUR 105—NLN MOBILITY PROFILE I, BOOK 1 (LPNS ONLY TRACKS I AND II)**

5 Credits

Evaluates previous learning and experience to facilitate educational mobility.



**NUR 106—TRANSITION TO ASSOCIATE DEGREE NURSING (LPNS ONLY TRACK I)**

5 Credits

Socializes the LPN into the role of the associate degree nurse. Identifies the role of the associate degree nurse in assisting people in meeting their needs from the childbearing process through adolescence. The nursing process is utilized to promote, maintain and/or restore health.

**NUR 107—TRANSITION TO ASSOCIATE DEGREE NURSING PRACTICUM: (LPNS ONLY TRACK I)**

3 Credits

Provides campus and clinical laboratory experience to function in the role of the associate degree nursing student in providing care to clients from the childbearing process through adolescence. The nursing process is employed to provide quality nursing care.

**NUR 199—COMPREHENSIVE COMPETENCY SKILL REVIEW (TRACKS I AND II)**

3 Credits

Includes but is not limited to demonstration of specific procedures by faculty or other personnel, student laboratory practice, return demonstration of the specific skill by the student, and the viewing of AV aids pertinent to the clinical setting.

**NUR 201—LIFE CYCLE NURSING II (TRACK I)**

5 Credits

Examines the role of the associate degree nurse in prioritizing human responses which interfere with basic needs contributing to physical and psychosocial illness. The nursing process is employed to promote, maintain, and/or restore health in young to middle-aged clients.

**NUR 202—LIFE CYCLE NURSING II PRACTICUM (TRACK I)**

5 Credits

Provides clinical experience to demonstrate the role of the associate degree nursing student in providing care to clients in the young to middle-aged adult period. Nursing skills are based on identified scientific facts, concepts, and principles. Decision making and appropriate therapeutic communication are emphasized.

**NUR 203—LIFE CYCLE NURSING III (TRACK I)**

5 Credits

Examines the role of the associate degree nurse in management and advanced communication concepts which are explored for groups of clients with multiple

health care needs. The nursing process is employed to promote, maintain, and/or restore health in the older adult client.

**NUR 204—LIFE CYCLE NURSING III PRACTICUM (TRACK I)**

5 Credits

Provides clinical opportunity for demonstration and evaluation of personal effectiveness in fulfilling the role of the associate degree nursing student in assisting older adults in meeting their physical and psychosocial health needs. Provides opportunity to utilize the nursing process incorporating management and advanced communication techniques.

**NUR 205—ISSUES IN NURSING (TRACKS I AND II)**

2 Credits

Examines issues and nursing responsibility to meet changing needs of persons in their environment. Historical aspects, current developments, future trends, improvement of nursing practice, legal/ethical considerations, and personal/professional growth are integrated into the examination of the role of the associate degree nurse.

**NUR 211—LIFE CYCLE NURSING I (TRACK II)**

5 Credits

Socializes the LPN into the role of the associate degree nurse. Identifies the role of the associate degree nurse in assisting people in meeting their needs from the childbearing process through the preschool years. The nursing process is utilized to promote, maintain and/or restore health.

**NUR 212—LIFE CYCLE NURSING II (TRACK II)**

5 Credits

Examines the role of the associate degree nurse in prioritizing human responses which interfere with basic needs contributing to physical and psychosocial illness. The nursing process is employed to promote, maintain, and/or restore health from preschool through early adulthood years.

**NUR 213—LIFE CYCLE NURSING I PRACTICUM (TRACK II)**

5 Credits

Provides campus and clinical laboratory experience to function in the role of the associate degree nursing student in providing care to clients from the childbearing process through early adulthood. The nursing process is employed to provide quality nursing care.

**NUR 221—LIFE CYCLE NURSING III  
(TRACK II)**

**4 Credits**

Examines the role of the associate degree nurse in prioritizing human responses which interfere with basic needs contributing to physical and psychosocial illness. The nursing process is employed to promote, maintain, and/or restore health during the middle adulthood period.

**NUR 222—LIFE CYCLE NURSING IV  
(TRACK II)**

**4 Credits**

Examines the role of the associate degree nurse in management and advanced communication concepts which are explored for groups of clients with multiple health care needs. The nursing process is employed to promote, maintain, and/or restore health in the older adult client.

**NUR 223—LIFE CYCLE NURSING II PRACTICUM  
(TRACK II)**

**5 Credits**

Provides clinical opportunity for demonstration and evaluation of personal effectiveness in fulfilling the role of the associate degree nursing student in assisting adults in meeting their physical and psychosocial health needs. Provides opportunity to utilize the nursing process incorporating management and advanced communication techniques.

**NUR 281-293—SPECIAL TOPICS IN ASSOCIATE  
DEGREE NURSING**

**1-5 Credits**

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# PRACTICAL NURSING

The Licensed Practical Nurse is an integral part of the health care team. The Practical Nursing program is a one-year course of study leading to a Technical Certificate. This accredited program prepares the individual to take the state licensure exam to become a Licensed Practical Nurse (LPN). The program is designed for students to gain knowledge and technical skills necessary to appropriately care for patients in a variety of health care settings such as hospitals, convalescent centers, and physician offices. Students learn to administer medications and treatments commonly performed by Licensed Practical Nurses.

The program is offered in Valparaiso, Fort Wayne, Greencastle, Lafayette, Indianapolis, Richmond, Columbus, Evansville, South Bend, Terre Haute, Muncie, Bloomington, Madison, Sellersburg, Gary, Elkhart, and Logansport.

## TECHNICAL CERTIFICATE PROGRAM

### Technical Courses (50 Credits)

Prefix	No.	Title	Semester Credits
PNU	101	Foundations of Nursing	4
PNU	102	Therapeutic Measures	3
PNU	103	Holistic Approach to Health	2
PNU	104	Nutrition	2
PNU	105	Introduction to Clinical Nursing	3
PNU	106	Anatomy and Physiology for PN	5
PNU	107	Cardiopulmonary Nursing	3
PNU	108	Endocrine/Genitourinary Nursing	3
PNU	109	Gastrointestinal/Sensorimotor Nursing	3
PNU	110	Introduction to Pharmacology for PN	2
PNU	111	Pharmacology for Practical Nurses	2
PNU	112	Medical/Surgical Clinical Nursing I	3
PNU	113	Medical/Surgical Clinical Nursing II	2
PNU	114	Nursing Issues and Trends	1
PNU	115	Gerontology	3
PNU	116	Geriatric Clinical Nursing	3
PNU	117	Maternal/Child Nursing	3
PNU	118	Maternal/Child Clinical Nursing	3
Total Credits			50

## PRACTICAL NURSING COURSE DESCRIPTIONS

### PNU 101—FOUNDATIONS OF NURSING

4 Credits

The art and science of practical nursing; the goals and the role of the licensed practical nurse on the health care team. Concept of the nursing process as practiced within the wellness/illness continuum. Includes basic nursing care, collection and recording of data.

### PNU 102—THERAPEUTIC MEASURES

3 Credits

Focuses on the art and science required for the prac-

tical nurse to carry out preventive, therapeutic, and rehabilitative nursing interventions requiring advanced skills and knowledge. Integrates the nursing process and the role of the practical nurse.

### PNU 103—HOLISTIC APPROACH TO HEALTH

2 Credits

Orientation to the holistic approach to the art and science of practical nursing. Includes holistic aspects of care, the wellness/illness continuum, and therapeutic relationships.

## **PNU 104—NUTRITION**

2 Credits

Basic principles of nutrition and diet therapy in wellness and illness for various age groups. Considers socioeconomic, ethnic and religious factors related to diet. Emphasis on the role of the practical nurse in assisting patients in meeting nutrition needs.

## **PNU 105—INTRODUCTION TO CLINICAL NURSING**

3 Credits

Provides students with opportunities to implement basic nursing skills in the clinical setting. Emphasizes the hygienic and comfort needs of the adult patient and focuses on developing basic assessment skills utilizing the nursing process. Concise, accurate documentation of assessments and care delivery is stressed.

## **PNU 106—ANATOMY AND PHYSIOLOGY FOR PN**

5 Credits

Presents structure and function of the human body. Examines the physical and chemical factors enabling human beings to interact with and to maintain homeostasis of the internal environment. Fundamental wellness/illness relationships are integrated.

## **PNU 107—CARDIOPULMONARY NURSING**

3 Credits

Utilizes the nursing process in understanding the pathophysiology and nursing care of patients with cardiovascular/ventilation needs. Emphasizes developing the nurse as a communicator and caregiver with a holistic approach.

## **PNU 108—ENDOCRINE/GENITOURINARY NURSING**

3 Credits

Utilizes the nursing process in understanding the pathophysiology of hormonal imbalances and urinary elimination needs. Emphasis is on developing the nurse as a communicator and caregiver with a holistic approach, identifying community supports for patients, and developing patient awareness of healthful lifestyle.

## **PNU 109—GASTROINTESTINAL/SENSORIMOTOR NURSING**

3 Credits

Utilizes the nursing process in understanding the pathophysiology of digestion, elimination, mobility, and sensorimotor needs. Develops the nurse as a communicator and caregiver with a holistic approach. Relates patients' psychosocial needs and opportunities for support through community agencies.

## **PNU 110—INTRODUCTION TO PHARMACOLOGY FOR PN**

2 Credits

The art and science of meeting biopsychosocial needs through administration of pharmacologic agents within the preventive, therapeutic and rehabilitative environment. Defines LPN responsibilities in medication administration. Nursing process is used to assess patient wellness/illness status.

## **PNU 111—PHARMACOLOGY FOR PRACTICAL NURSES**

2 Credits

A survey of common pharmacologic agents. Nursing process is the framework used to meet biopsychosocial needs of individuals along the wellness/illness continuum through the administration of pharmacologic agents. Drug therapy is developed as one aspect of preventive, therapeutic and rehabilitative care of patients in their environment.

## **PNU 112—MEDICAL/SURGICAL CLINICAL NURSING I**

3 Credits

Correlates medical surgical content and nursing practice. Nursing process is used as the basis of decision making within the practical nurse role. Emphasis is on the holistic aspects of individuals along the wellness/illness continuum.

## **PNU 114—NURSING ISSUES AND TRENDS**

1 Credit

Introduces organizational patterns and the role of Licensed Practical Nurses in the health care delivery system. Emphasizes continuing education as a means to maintain competencies. Ethical, legal, and historical aspects included to develop awareness of privileges, obligations and responsibilities of the practical nurse.

## **PNU 114—NURSING ISSUES AND TRENDS**

1 Credit

Introduces organizational patterns and the role of Licensed Practical Nurses in the health care delivery system. Emphasizes continuing education as a means to maintain competencies. Ethical, legal, and historical aspects included to develop awareness of privileges, obligations and responsibilities of the practical nurse.

## **PNU 115—GERONTOLOGY**

3 Credits

Focuses on the normal aging process along the wellness/illness continuum in later life. Trends in preventive, rehabilitative, and therapeutic care are surveyed.



**PNU 116—GERIATRIC CLINICAL NURSING**

3 Credits

Correlates gerontologic content with holistic care of the older adult. Implements nursing process within the role of the practical nurse to prevent illness or to maintain, promote, and restore health.

**PNU 117—MATERNAL/CHILD NURSING**

3 Credits

Examines conditions and selected interventions based on the nursing process in providing preventive, rehabilitative and therapeutic care for the mother and child. The role of the Licensed Practical Nurse is identified in providing holistic care within a dynamic environment.

**PNU 118—MATERNAL/CHILD CLINICAL NURSING**

3 Credits

Correlates maternal child content with holistic care of the mother and child. Emphasis is on the normal maternity cycle and normal growth and development of the child within the wellness/illness continuum.

**PNU 281-293—SPECIAL TOPICS IN PRACTICAL NURSING**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# RADIOLOGIC TECHNOLOGY

The radiologic technologist prepares patients for X-rays; positions them; determines the proper voltage, current, and exposure time; and operates the equipment. Trained radiologic technologists are in demand in hospitals, medical laboratories, physicians' and dentists' offices and clinics, federal and state health agencies and certain educational institutions.

The Associate in Applied Science program includes courses in the following areas: radiologic technique, exposure, positioning, protection, radiation physics, and ethics. Clinical practice and supplemental instruction are provided in accredited hospitals. Upon completion of program requirements, graduates are eligible to take the National Registry Examination.

The program is offered in Indianapolis and Terre Haute.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (55 Credits)

Prefix	No.	Title	Semester Credits
RAD	101	Orientation & Nursing in Radiologic Technology	3
RAD	102	Principles of Radiographic Exposure	4
RAD	103	Radiographic Positioning I	3
RAD	104	X-Ray Clinical Education I	4
RAD	105	Radiographic Positioning II	3
RAD	106	X-Ray Clinical Education II	3
RAD	107	Radiation Physics	3
RAD	108	Radiographic Quality Assurance	2
RAD	109	Imaging Techniques	2
RAD	201	Radiographic Positioning III	3
RAD	202	X-Ray Clinical Education III	6
RAD	203	X-Ray Clinical Education IV	6
RAD	204	X-Ray Clinical Education V	5
RAD	205	Pathology for Radiologic Technology	2
RAD	206	Radiobiology	3
RAD	299	General Exam Review	3

### General Education Courses (19 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
SOC	101	Human Relations	3
SCI	113	Anatomy and Physiology I	3
SCI	115	Anatomy and Physiology II	3
MEA	101	Medical Terminology	3
MEA	103	Medical Law and Ethics	1
RAD	110	Technical Math for Health Occupations	3

### Regional Courses (3 Credits)

	<u>3</u>
Total Credits	77

# RADIOLOGIC TECHNOLOGY COURSE DESCRIPTIONS

## **RAD 101—ORIENTATION AND NURSING PROCEDURES IN RADIOLOGIC TECHNOLOGY**

3 Credits

History and application of diagnostic X-ray from its discovery to modern procedures. Introduces principles, properties, and safe usages. Emphasizes patient, technologist, and physician safety, along with patient-technologist relationships, asepsis, isolation, and first aid. Introduction to abdomen and chest positioning.

## **RAD 102—PRINCIPLES OF RADIOGRAPHIC EXPOSURE**

4 Credits

Presents individual and group characteristics needed to produce the ideal radiograph. Knowledge of interchangeability of mAs, kVp, film/screen combinations, distance, and grids. Also factors and considerations needed for pediatric techniques, calibration, heat unit calculation, and technique chart construction.

## **RAD 103—RADIOGRAPHIC POSITIONING I**

3 Credits

Correlates positioning, terminology, techniques and film evaluation with exams of the upper extremity, upper and lower gastrointestinal tract, and intravenous pyelogram examinations.

## **RAD 104—X-RAY CLINICAL EDUCATION I**

4 Credits

Implements Clinical Category 1 of the Competency Model. Includes laboratory demonstration, clinical practice, and supervised clinical experience.

## **RAD 105—RADIOGRAPHIC POSITIONING II**

3 Credits

Correlates positioning, terminology, techniques and film evaluation with exams of the lower extremity, additional contrast studies.

## **RAD 106—X-RAY CLINICAL EDUCATION II**

3 Credits

Category 2 of the Competency Laboratory Model, testing competency and proficiency of skills from Category 1 and 2. Includes supervised clinical experience.

## **RAD 107—RADIATION PHYSICS**

3 Credits

Introduces physics as utilized in the production of X-rays. Includes laws of physics pertaining to atomic

structure, chemical properties and reactions, and electrical circuitry. Also covers equipment and methods of generation and measurement of electricity.

## **RAD 108—RADIOGRAPHIC QUALITY ASSURANCE**

2 Credits

Presents theories and practices pertaining to the establishment of department exposure standards. Includes equipment tests for reliability, problem solving, reject analysis, and cost containment. Hands-on experience in processor monitoring, record keeping, and radiographic quality control tests.

## **RAD 109—IMAGING TECHNIQUES**

2 Credits

Theories, principles, and demonstrations of current imaging modalities, including the image intensifier, tomography, video and cine camera, serial changers, subtraction technique, polaroid, thermography, ultrasound, and xeroradiography.

## **RAD 110—TECHNICAL MATH FOR HEALTH OCCUPATIONS**

3 Credits

Basic instruction in technical mathematics for students in health occupations. Includes review of arithmetic, basic concepts of algebra, graphing geometry, and logarithms.

## **RAD 201—RADIOGRAPHIC POSITIONING III**

3 Credits

Covers positioning terminology, techniques, and film evaluations of the cranium, vertebral column, mammography, and routine special radiographic procedures.

## **RAD 202—X-RAY CLINICAL EDUCATION III**

6 Credits

Introduces Category 3 of the Competency Model, proficiency testing over Category 1 and 2, skills and competency testing over Category 3. Includes supervised clinical experience and skill maintenance.

## **RAD 203—X-RAY CLINICAL EDUCATION IV**

6 Credits

Introduces Category 4 of the Competency Model in laboratory proficiency testing of skills learned in Category 1, 2, and 3, and competency in Category 4. Includes supervised clinical experience.

**RAD 204—X-RAY CLINICAL EDUCATION V**

5 Credits

Includes final competency testing for students who have not completed X-ray Clinical Education IV. Continues maintenance over all categories. Includes supervised clinical experience.

**RAD 205—PATHOLOGY FOR RADIOLOGIC TECHNOLOGY**

2 Credits

Examines basic concepts concerning disease, its causes, and the resulting changes as viewed radiographically. Emphasis is placed on needed technical changes to produce optimal radiographs from correlations to patient symptoms.

**RAD 206—RADIOBIOLOGY**

3 Credits

Theory and principles of the effects of ionizing radiation

upon living tissues. Includes a review of dosage, measurements, DNA structure and function, and cellular radiosensitivity.

**RAD 281-293—SPECIAL TOPICS IN RADIOLOGIC TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

**RAD 299—GENERAL EXAMINATION REVIEW**

3 Credits

Reviews content of program, emphasizing anatomy, physics, exposure principles, and positioning. Simulated Registry exams prepare the student for American Registry of Radiologic Technologist Examination.



# RESPIRATORY CARE

A respiratory care practitioner is an allied health professional who works under the direction of physicians in the diagnosis, evaluation, treatment, education and care of patients with cardio-pulmonary diseases or abnormalities.

A graduate of the Associate in Applied Science program will be eligible to sit for the Entry Level and Advanced Practitioner exams given by the National Board for Respiratory Care (NBRC). Successful exam candidates will be awarded the Registered Respiratory Therapist credential. A graduate of the entry-level program will be eligible to sit for the entry-level practitioner exam given by the NBRC. Successful exam candidates will be awarded the Certified Respiratory Therapy Technician credential.

The two-year Associate in Applied Science degree requires 81 credits for completion. Technical Certificates are also offered. Programs are offered in Fort Wayne, Indianapolis, Lafayette and Valparaiso.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (57 Credits)

Prefix	No.	Title	Semester Credits
RES	101	Respiratory Care Science I	3
RES	102	Respiratory Care Science II	3
RES	103	Respiratory Care Science III	3
RES	104	Respiratory Care Science IV	3
RES	105	Biophysics for Respiratory Care	3
RES	106	Clinical Medicine	3
RES	107	Cardiopulmonary Physiology	3
RES	108	Clinical Practicum I	3
RES	109	Clinical Practicum II	3
RES	110	Clinical Practicum III	3
RES	111	Clinical Practicum IV	3
RES	201	Respiratory Care Science V	3
RES	202	Respiratory Care Science VI	3
RES	203	Pathophysiology and Monitoring	3
RES	204	Clinical Practicum V	3
RES	205	Clinical Practicum VI	3
RES	206	Clinical Practicum VII	3
CIS	101	Introduction to Microcomputers	3
IST	102	Techniques of Supervision	3

### General Education Courses (24 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
SOC	101	Human Relations	3
MAT	101	Algebra I or	
RAD	110	Technical Math for Health Occupations	3
SCI	107	Chemistry	3
SCI	111	Microbiology	3
SCI	113	Anatomy & Physiology I	3
SCI	115	Anatomy & Physiology II	3
MEA	113	Pharmacology	3
Total Credits			81

# RESPIRATORY CARE COURSE DESCRIPTIONS

## RES 101—RESPIRATORY CARE SCIENCE I

3 Credits

Includes condensed history of respiratory care; principles/practices of oxygen administration; equipment cleaning and sterilization techniques; and gas analyzers. Includes patient care needs, asepsis, body mechanics, physical assessment, isolation techniques, medical terminology and medical records.

## RES 102—RESPIRATORY CARE SCIENCE II

3 Credits

Includes principles and practices of oxygen administration: gas blenders; humidity and aerosol therapies; environmental therapy; introduction to manual resuscitators; and therapeutics of incentive spirometry. Includes selected aspects of ethical practice.

## RES 103—RESPIRATORY CARE SCIENCE III

3 Credits

Covers medicinal aerosol therapy and respiratory pharmacology, ultrasonic therapy, positive pressure breathing modalities, chest physiotherapy and pulmonary rehabilitation. Introduces basic pulmonary function testing. Selected aspects of ethical and legal respiratory practice are presented.

## RES 104—RESPIRATORY CARE SCIENCE IV

3 Credits

Covers basic airway care, basic arterial blood gas analysis and interpretation and basic medical laboratory data. Concepts and techniques of critical respiratory care of adults and infants. Includes adult, pediatric, and neonatal mechanical ventilators and related monitoring equipment.

## RES 105—BIOPHYSICS FOR RESPIRATORY CARE

3 Credits

Basic principles of physics related to respiratory care. Emphasis is placed on principles of motion, work, energy, electricity and bioelectricity, and properties of liquids and gases.

## RES 106—CLINICAL MEDICINE

3 Credits

Introduces etiology, symptomatology, diagnosis, therapeutics and prognosis of selected pulmonary diseases.

## RES 107—CARDIOPULMONARY PHYSIOLOGY

3 Credits

Covers the cardiopulmonary system including ventilation, perfusion, and gas exchange. Introduces arterial blood gases, acid-base regulation and physiologic monitoring.

## RES 108—CLINICAL PRACTICUM I

3 Credits

Introduction to the hospital environment. Experiences in various hospitals with respiratory care departments, patient charts, patient identification and communication.

## RES 109—CLINICAL PRACTICUM II

3 Credits

Provides supervised experience in oxygen therapy, incentive spirometry, humidity/aerosol therapy and charting. Continuing certification in CPR is required.

## RES 110—CLINICAL PRACTICUM III

3 Credits

Supervised experience in selected therapeutic modalities. Introduction to chest physiotherapy, medicinal aerosol therapy, intermittent positive pressure breathing and ultrasonic therapy. Continuing certification in CPR is required.

## RES 111—CLINICAL PRACTICUM IV

3 Credits

Additional supervised experience in selected therapeutic modalities. Introduction to basic cardiopulmonary testing and mechanical ventilation is included. Continuing certification in CPR is required.

## RES 201—RESPIRATORY CARE SCIENCE V

3 Credits

Includes in-depth approaches to the respiratory care management of critically ill neonatal, pediatric and adult patients. Special emphasis on techniques of patient evaluation, monitoring, transportation and management.

## RES 202—RESPIRATORY CARE SCIENCE VI

3 Credits

Covers advanced techniques of mechanical ventilation of neonatal, pediatric and adult patients. Includes advanced techniques of patient assessment through pulmonary function testing and other selected assessment techniques.

**RES 203—PATHOPHYSIOLOGY AND MONITORING**

3 Credits

Includes etiology, symptomatology, diagnosis, therapeutics and prognosis of disease conditions related to respiratory care including relationships of body systems. Covers various equipment, techniques of data collection, interpretation and evaluation of data used in monitoring the cardiopulmonary system.

**RES 204—CLINICAL PRACTICUM V**

3 Credits

Provides additional supervised experience in selected therapeutic modalities. Includes advanced patient assessment, clinical experience in adult critical care, arterial blood gas analysis and airway care. Continuing certification in CPR is required.

**RES 205—CLINICAL PRACTICUM VI**

3 Credits

Additional supervised experience in selected therapeutic modalities. Includes advanced clinical experience in adult, pediatric and neonatal critical care and experience in adult education. Continuing certification in CPR is required.

**RES 206—CLINICAL PRACTICUM VII**

3 Credits

Includes additional supervised experience in selected therapeutic modalities. Includes advanced cardiopulmonary diagnostic techniques, application of invasive and non-invasive monitoring of the cardiopulmonary system, experience in respiratory care departmental management and quality assurance roles. Continuing certification in CPR is required.

**RES 281-293—SPECIAL TOPICS IN RESPIRATORY CARE**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

**RES 299—COMPREHENSIVE REVIEW**

3 Credits

Reviews selected material to prepare students for the National Board of Respiratory Care examinations. Course content is based on the current matrix for the examinations.

# SURGICAL TECHNOLOGY

The surgical technologist is a highly skilled member of the surgical team, qualified by didactic and clinical education, to provide safe and efficient care to the patient in the operating room. The didactic education consists of courses in Anatomy and Physiology, Microbiology, Pharmacology, Medical Law and Ethics, Surgical Techniques, and Surgical Procedures.

Closely supervised clinical education is provided in local area hospitals. The surgical technologist actively participates in surgery by performing scrub and/or circulating duties which include: passing instruments and supplies to the surgical team members, preparing and positioning the patient, operating equipment, assisting the anesthesiologist, and keeping accurate records. Obstetrical and Emergency Room clinical experiences may be provided by specific hospitals. The program is one calendar year in length requiring 55 credits leading to a Technical Certificate. The program is offered in Valparaiso, Lafayette, Indianapolis and Evansville.

## TECHNICAL CERTIFICATE PROGRAM

### Technical Courses (39 Credits)

Prefix	No.	Title	Semester Credits
SUR	101	Surgical Techniques	3
SUR	102	Surgical Procedures I	3
SUR	103	Fundamentals of Surgical Technology	6
SUR	104	Surgical Procedures II	6
SUR	105	Clinical Applications I	9
SUR	106	Surgical Procedures III	3
SUR	107	Clinical Applications II	9

### General Education Courses (16 Credits)

Prefix	No.	Title	
SOC	101	Human Relations	3
SCI	111	Microbiology	3
SCI	113	Anatomy & Physiology I	3
SCI	115	Anatomy & Physiology II	3
MEA	103	Medical Law and Ethics	1
MEA	113	Pharmacology	3
Total Credits			55



## **SURGICAL TECHNOLOGY COURSE DESCRIPTIONS**

### **SUR 101—SURGICAL TECHNIQUES**

3 Credits

Introduction to principles of sterile technique and the operative care of the surgical patient. Includes the roles of scrubbing and circulating duties.

### **SUR 102—SURGICAL PROCEDURES I**

3 Credits

Orientation to the role of a surgical technologist. Introduction to the surgical facility, aseptic technique, and basic surgical procedures with review of total patient care including pre-operative care, diagnostic tests, and immediate post-operative care.

### **SUR 103—FUNDAMENTALS OF SURGICAL TECHNOLOGY**

6 Credits

Demonstration and supervised practice of general surgical procedures. Students correlate theory to clinical by actively participating as members of surgical team. Includes laboratory and clinical components.

### **SUR 104—SURGICAL PROCEDURES II**

6 Credits

A study of advanced surgical procedures in relation to the total physiological aspects of surgical intervention. This includes a knowledge of the involved anatomy, existing pathology, surgical hazards encountered, the surgical procedure, and a review of total patient care.

### **SUR 105—CLINICAL APPLICATIONS I**

9 Credits

Correlates the basic principles and theories of the study

of advanced surgical procedures to the clinical performance in affiliating hospitals. This includes the knowledge, skills and attitudes necessary for successful implementation of safe patient care in an operating room.

### **SUR 106—SURGICAL PROCEDURES III**

3 Credits

A study of specialized surgical procedures in relation to the total physiological aspect of surgical intervention. This includes a knowledge of the involved anatomy, existing pathology, surgical hazards encountered, the surgical procedure, and a review of total patient care.

### **SUR 107—CLINICAL APPLICATIONS II**

9 Credits

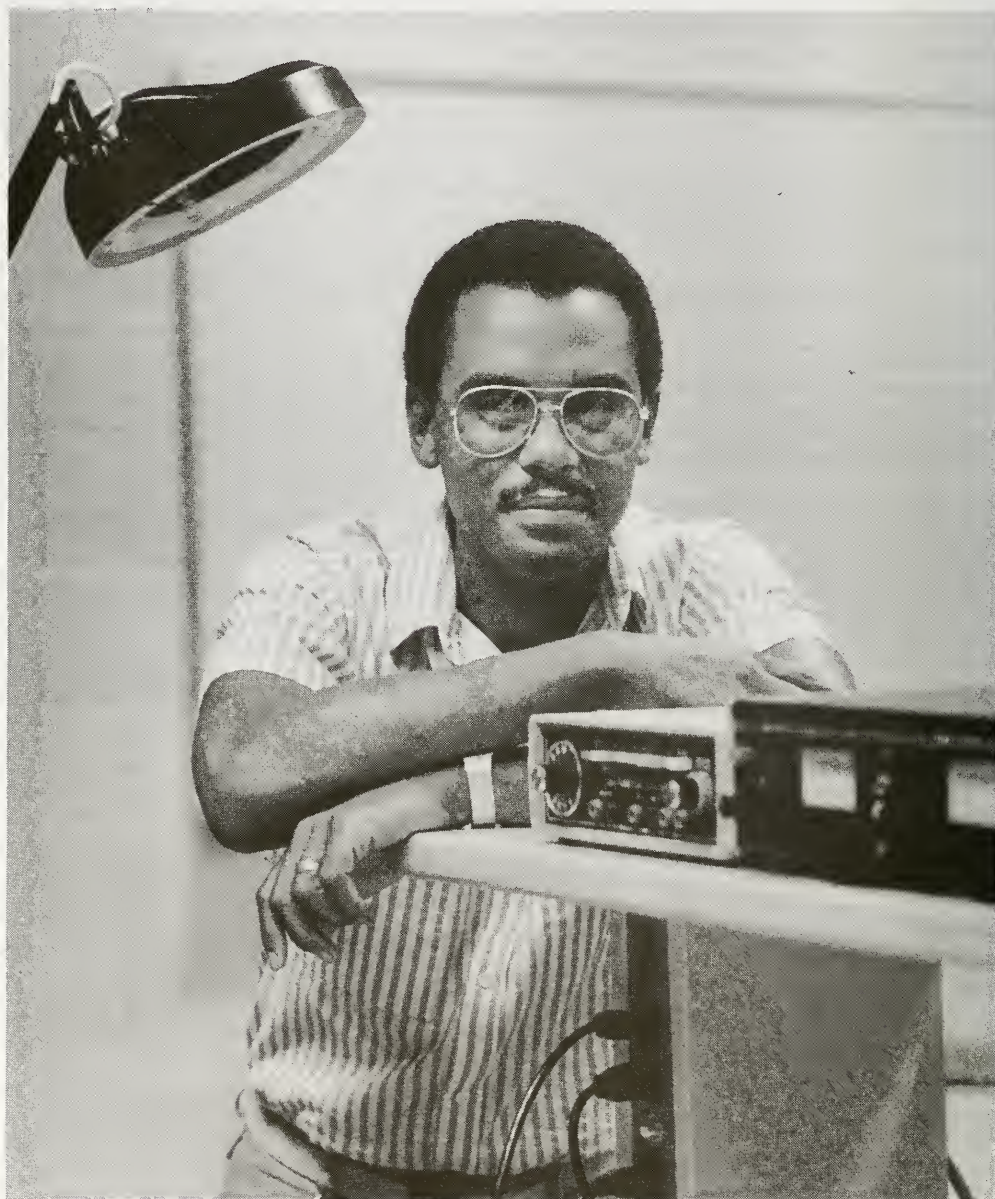
Correlates the principles and theories of specialized surgical procedures to the clinical performance in affiliating hospitals. This includes the knowledge, skills, and attitudes necessary for successful implementation of safe patient care in an operating room.

### **SUR 281-293—SPECIAL TOPICS IN SURGICAL TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

## DIVISION OF APPLIED SCIENCE AND TECHNOLOGIES



*The Division of Applied Science and Technologies provides broad, practical training for those seeking employment and advancement in craft and technical occupations. The programs emphasize the ability to think and plan in the job setting. Initial laboratory experiences develop skills in the use of modern industrial equipment and measuring instruments. Later classroom and laboratory work provide training in industrial applications of theory, analysis, design, and construction techniques. Each program provides opportunities for the student to advance from basic skills to proficiency on a high technological level.*

*Program advisory committees, composed of experts in each area of industry, serve the important function of keeping the content of the programs current with changes in technology. Ivy Tech's programs and courses are designed to meet the needs of local industries. The practical value of the coursework is substantiated by its use in the training programs of many local industries. The student is advised to contact the nearest center for information concerning programs and course offerings.*

## APPLIED FIRE SCIENCE TECHNOLOGY

The Applied Fire Science Technology program provides students with course work in theory, formula, and application of the science of firefighting. This is coupled with extensive practical skills, abilities, and knowledge training to prepare graduates for employment and promotional advancements in fire departments, industrial plants, fire underwriters groups, and building fire safety organizations. Course schedules are arranged to meet firefighters' work schedules.

The two-year program, requiring 66 credits, leads to the Associate in Applied Science degree. State of Indiana Second and First Class Firefighters' Certifications and Master Certifications are available in specialized areas: Driver/Operator, Aircraft Crash and Rescue, Strategy and Tactics, Fire Service Management, Fire Prevention/Inspector, Fire/Arson Investigation, Public Fire Educator, and Hazardous Materials Specialist. National Fire Academy field programs are offered and certificates and credits are awarded upon successful completion. The program is offered in Gary, Fort Wayne and Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (39 Credits)

Prefix	No.	Title	Semester Credits
AFS	101	Fire Technology	3
AFS	102	Fire Apparatus and Equipment	3
AFS	103	Firefighting Strategy and Tactics	3
AFS	104	Building Construction Fire Service	3
AFS	105	Fire/Arson Investigation	3
AFS	106	Hazardous Materials	3
AFS	108	Fire Prevention/Inspection	3
AFS	109	Fire Department Specifications	3
AFS	201	Fire Alarm and Protection Equipment	3
AFS	202	Fire Service Management	3
AFS	204	Fire Service Hydraulics	3
ELT	104	Computer Fundamentals for Technology	3
IMT	121	Industrial Safety	3



**General Education Courses (18 Credits)**

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
SOC	101	Human Relations	3
SOC	105	Introduction to Political Science	3
SCI	107	Chemistry	3

**Regional Courses (9 Credits)**

	<u>9</u>
Total Credits	66

## APPLIED FIRE SCIENCE COURSE DESCRIPTIONS

**AFS 101—FIRE TECHNOLOGY**

3 Credits

A general introduction to the study of fire science. Covers the history of firefighting, types of fire apparatus and protection systems, and general fire problems. Includes study of the chemical and hazardous properties of combustion and related by-products.

**AFS 102—FIRE APPARATUS AND EQUIPMENT**

3 Credits

An in-depth examination of the various types of fire apparatus in current use, including pumpers, aerials, elevating platforms, and rescue apparatus. Coursework, utilizing N.F.P.A. 1500 and 1901, develops skills in the selection of appropriate apparatus and the preparation of specifications. Includes evaluating bids, financing and equipment selection.

**AFS 103—FIREFIGHTING STRATEGY AND TACTICS**

3 Credits

Focuses on decision-making related to fireground strategies and tactics at the company level. Various priority scenarios are presented, which include preparation for incident command and commanding the initial response. Emphasizes company operation and basic command decisions.

**AFS 104—BUILDING CONSTRUCTION FIRE SERVICE**

3 Credits

The design principles involved in the protection of a structure from fire involvement are examined. Exam-

ines the signs, symptoms, and indicators of partial or total building collapse in firefighting operations. Includes study of legislative codes and laws concerning building design, building fire safety, classification of building construction, and blueprint reading.

**AFS 105—FIRE/ARSON INVESTIGATION**

3 Credits

Focuses on the responsibility of the firefighter, the investigator, and the department in fire scene investigations. Includes fire cause and loss, collection and preservation of evidence and determination of fire origin with emphasis on the application of various scientific aids that assist in investigations.

**AFS 106—HAZARDOUS MATERIALS**

3 Credits

Introduces basic chemistry in the study of the properties, derivations and uses of explosives and other dangerous materials. These include flammable liquids and solids, oxidizing materials, corrosives, and compressed gases. The identification of chemicals, storage, and handling of hazardous materials is emphasized.

**AFS 108—FIRE PREVENTION/INSPECTION**

3 Credits

Examines the function of the fire inspector and organization of the fire prevention unit. Emphasizes the identification of the various codes and regulations utilized by the inspector with special attention given to the Indiana Fire Code. Includes the legal authority governing fire prevention, application of the fire code, and management principles as applied to a bureau.



### **AFS 109—FIRE DEPARTMENT SPECIFICATIONS**

3 Credits

This course consists of specifications of firefighting apparatus, equipment, protective clothing, facilities, and all other sources of materials necessary to a fire department. Study includes the writing of Standard Operating Guides (SOG's) and blueprint readings.

### **AFS 201—FIRE ALARM AND PROTECTION EQUIPMENT**

3 Credits

Provides a basic introduction to fire alarm monitoring devices and extinguishing systems with implications for fire protection and commercial applications. Technical areas of study include fire extinguishing agents, portable fire extinguishers, carbon dioxide systems, dry chemical systems, halogenated/foam systems, and building monitoring systems.

### **AFS 202—FIRE SERVICE MANAGEMENT**

3 Credits

The principles and functions of fire science administration and management personnel are introduced. Areas of study include department organization, administrative and management procedures, personnel selection, line and staff functions, communications, the fire company unit, public relations, and current problems in administration.

### **AFS 203—INCIDENT COMMAND**

3 Credits

Emphasizes leadership in the application of knowledge pertaining to fire hazards and cause, firefighting strategy and tactics, fire technology and safety practices as described in N.F.P.A. 1021.

### **AFS 204—FIRE SERVICE HYDRAULICS**

3 Credits

This study of compressible fluids includes fluid properties, principles of fluid statics, flow system principles, pipe friction and heat loss, flow measurements, pumps and other hydraulic devices and machinery with applications for fire protection and water supply systems.

### **AFS 205—AIRCRAFT FIREFIGHTING**

3 Credits

The hazards associated with aircraft firefighting are examined. Emphasizes the use of airport firefighting equipment, extinguishing agents, strategy and tactics, rescue methods, and aircraft design and construction.

### **AFS 206—SHIPBOARD FIREFIGHTING**

3 Credits

Focuses on firefighting strategy and tactics for land-based fire department personnel and equipment. Includes survey of equipment, hookups, procedures, incident command, the use of foam, and support systems on ships.

### **AFS 207—FIRE SAFETY HAZARD RECOGNITION**

3 Credits

An intensive study of "the fire problem." A survey of physical, chemical and electrical hazards and their relationship to loss of property and/or life. Safe storage and handling of hazardous material.

### **AFS 208—INDUSTRIAL FIRE LOSS PREVENTION**

3 Credits

Provides for comprehensive study of industrial fire loss prevention and control management programs. Includes procedures for fire risk and loss control, standards and specifications for equipment, laws, codes and regulations, organization of fire brigades, and administrative control of industrial operation.

### **AFS 209—FIREGROUND MANAGEMENT**

3 Credits

Emphasizes the command and control of major fire department operations at an advanced level, linking operations and safety. Areas of study include pre-incident preparation, size-up, incident command system, and incident management. Utilizes simulated incidents requiring the applications of appropriate solutions.

### **AFS 210—COMPUTERS FOR THE FIRE SERVICE**

3 Credits

Examines the use of computers in the fire service. Includes computer-ordered dispatch, data information retrieval of hazardous materials control and intervention as well as text-editing abilities.

### **AFS 262—FIREFIGHTER 2ND CLASS**

3 Credits

This course is intended to certify firefighters for state certification as a 2nd class firefighter.

### **AFS 263—FIREFIGHTER 1ST/2ND CLASS**

3 Credits

This course is intended to complete certification at the 2nd class level and begin 1st class instruction.

**AFS 264—FIREFIGHTER**

**3 Credits**

This course details in depth the various subjects in the fire service which would enable the student to receive state certification as a 1st class firefighter. Subjects examined include basic tactics, emergency medical care, water supplies, sprinklers, inspection, basic fire apparatus driver, fire service records, law, and hazardous materials.

**AFS 281-293—SPECIAL TOPICS IN APPLIED FIRE SCIENCE TECHNOLOGY**

**1-5 Credits**

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# AUTOMATED MANUFACTURING TECHNOLOGY

The Automated Manufacturing Technology program prepares technicians to design, install, calibrate, program, operate, test, analyze, troubleshoot, service and repair advanced manufacturing, assembly, and materials-handling systems and data computer networks. This is a multi-disciplinary program which utilizes mechanical, electrical, thermal, and fluid technology to shape, form and process raw materials into finished products; assemble parts into finished products using sensing, vision, and robotic techniques; use automated modern material handling techniques including conveyors, manless parts vehicles, and storage systems; and use computer data communications networks such as machine controllers, robot controllers, cell computers and computers adapted for inventory control and manufacturing.

Coursework includes studies in technical math, physics, written and oral communications, interpersonal and human relations. Technical study covers electricity, electronics, solid state devices, digital electronics, microprocessor and computer fundamentals, programmable controllers, hydraulics, pneumatics, servo-mechanisms, drives and drive-trains, robots, work cells and flexible manufacturing systems, machine tools, computer-aided drafting/computer-aided manufacturing, computer numerical control, and computer-integrated manufacturing.

The two-year program requiring completion of 71 credits leads to the Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. The program is offered at Gary, South Bend, Fort Wayne, Lafayette, Kokomo, Muncie, Terre Haute, Indianapolis, Richmond, Columbus, Madison, Evansville and Sellersburg; the AS is offered in Terre Haute.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (45 Credits)

Prefix	No.	Title	Semester Credits
AMT	101	Manufacturing Processes	3
AMT	102	Introduction to Robotics	3
AMT	201	Manufacturing Systems Control	3
AMT	202	Work Cell Design and Integration	3
AMT	203	Automation Electronics	3
AMT	204	Automation Management	3
AMT	205	Automated Manufacturing Systems	3
ELT	103	Digital Principles	4
ELT	104	Computer Fundamentals for Technology	3
ELT	105	Solid State I	4
ELT	100	Circuits I	4
DCT	103	CAD Fundamentals	3
IMT	104	Fluid Power Basics	3
MTT	204	CNC Programming I	3

### General Education Courses (18 Credits)

Prefix	No.	Title	Semester Credits
ENG	101	English Composition	3
MAT	104	Algebra/Trigonometry I	3
SCI	103	Physics I	3
SCI	105	Physics II or	3
SCI	203	Advanced Physics	

**General Education Courses** (continued)

<b>Prefix</b>	<b>No.</b>	<b>Title</b>	
SOC	101	Human Relations	3
ENG	201	Technical Writing	3

**Regional Courses** (8 Credits)

Total Credits 8  
71

## AUTOMATED MANUFACTURING TECHNOLOGY COURSE DESCRIPTIONS

**AMT 101—MANUFACTURING PROCESSES**

3 Credits

A basic survey of manufacturing processes, tools and equipment used by modern industry to convert bars, forgings, castings, plates and sheet materials into finished products. Includes basic mechanics of materials removal and forming, metrology, quality control, and safety of operations.

**AMT 102—INTRODUCTION TO ROBOTICS**

3 Credits

Introduces robotics and automated systems and their operation. Includes robotics principles of operation and work envelopes. Various coordinate systems and how hydraulic, pneumatic and electromechanical systems function together as a system. Also covers servo and nonservo controls, system capabilities and limitations, and safety. Robot tooling is investigated including welders, grippers, magnetic pickups, vacuum pickups, compliance devices, adhesive applicators, and paint sprayers.

**AMT 103—CNC Basics**

3 Credits

Students learn the basic skills in the manual programming, set-up and operation of CNC mills and lathes. Lectures cover CNC terminology, basic G and M codes, machine set-up and operation. Includes practice on scaled-down CNC mill and lathe trainers.

**AMT 104—CNC MILL PROGRAMMING I**

3 Credits

A review of the various industrial applications of CNC milling machines. Lectures will involve discussions of numerous milling cycles found on state-of-the-art equipment. Manual programming, set up, and operation will be practiced. Basic tooling used on industrial CNC mills will be identified and used in laboratory settings. Precision measurement techniques will be identified and practiced.

**AMT 105—CNC MILL PROGRAMMING II**

3 Credits

CNC Mill Programming II presents advanced training on the manual programming of CNC machining centers. Milling, drilling, reaming, pocket milling, and tapping cycles will be practiced. Sub-routine programming will also be practiced along with machine set-up, processing, machining center operation and tooling requirements.

**AMT 106—COMPUTER ASSISTED MILL PROGRAMMING**

3 Credits

The study and applications of advanced computer programming techniques using menu driven software to generate part programs for CNC machining centers. Post processing, interactive graphics, program simulation and CAD/CAM will be covered. Students will practice these techniques on state-of-the-art programming stations and CNC machining centers.

**AMT 107—CNC LATHE PROGRAMMING I**

3 Credits

A review of the various industrial applications of computer numerically controlled lathes. Lectures will involve discussion of numerous turning cycles found on more sophisticated lathe controllers. Manual programming, set-up, and operation of industrial lathes will be practiced. Basic tooling used on industrial CNC lathes will also be covered. Students will practice these techniques on state-of-the-art programming stations and CNC machining centers.

**AMT 108—CNC LATHE PROGRAMMING II**

3 Credits

The study and operation of advanced manual programming techniques used on industrial turret lathes. Turning, boring, grooving, and threading cycles will be practiced with advanced sub-routine programming methods. Students will also receive further training on set-up, processing, machine operation, and lathe tooling.



### **AMT 109—COMPUTER ASSISTED LATHE PROGRAMMING**

3 Credits

The study and application of advanced computer programming techniques. Students receive hands-on training using menu driven software to generate part programs for CNC lathes. Post processing, interactive graphics, program simulation and CAD/CAM will be covered. Students will perform these techniques on state-of-the-art programming stations and CNC turret lathes.

### **AMT 110—ROBOTICS AND AUTOMATED SYSTEMS**

3 Credits

This course introduces the student to robotics and automated systems and their operating characteristics. Topics to be covered include robotics principles of operation and work envelopes. Students will learn the various coordinate systems and how hydraulic, pneumatic and electromechanical systems function together as a system. Other subjects to be covered include servo and nonservo controls, system capabilities and limitations, and safety. Robot tooling will be investigated including welders, grippers, magnetic pickups, vacuum pickups, compliance devices, adhesive applicators, and paint sprayers.

### **AMT 201—MANUFACTURING SYSTEMS CONTROL**

3 Credits

An introduction to the field of industrial controls. Covers the principles of control systems as applied to a production system to achieve automation. Systems included are stepper motors, programmable logic controllers, microprocessors, computers, and feedback systems. Emphasis is on programmable logic controllers and the local area network.

### **AMT 202—WORK CELL DESIGN AND INTEGRATION**

3 Credits

Investigates principles of design and implementation of robots in industrial work cells. Covers selection of the

best work site and robot system, application of cell sensor, development of cycle times, economic analysis, safety considerations, proposal preparation, and human resources development.

### **AMT 203—AUTOMATION ELECTRONICS**

3 Credits

The operation and application of electronic devices in the automation field. Applications include linear integrated circuits, sensors and interfacing systems, actuators and drive controls, and process control techniques.

### **AMT 204—AUTOMATION MANAGEMENT**

3 Credits

Designed to provide training in basic principles applications in short and long term planning and control of operations for production and services and improvement programs in any organization. Includes characteristics of systems and solution of problems for process of products and service operations, methods analysis, cost estimating, facilities planning, tooling and services acquisition and maintenance, production, project, and program scheduling, materials and inventory management, safety and loss prevention, decision making tools and the evaluation of alternatives.

### **AMT 205—AUTOMATED MANUFACTURING SYSTEMS**

3 Credits

Students working in teams and under the instructor's supervision will select equipment, write specifications, design fixtures and interconnects, integrate systems, provide interfaces and make the assigned systems operational to produce "marketable" products.

### **AMT 281-293—SPECIAL TOPICS IN AUTOMATED MANUFACTURING TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# AUTOMOTIVE BODY REPAIR TECHNOLOGY

The Automotive Body Repair Technology program prepares students to become qualified body repair technicians. Courses are offered in body, frame, and chassis repair, collision damage, paint refinishing, fiberglass/plastics repair, sheet metal repair, and welding. Training laboratories offer experience on up-to-date, sophisticated equipment such as the bench measuring and pulling systems used in precision alignment.

A one-year program requiring 36 credits leads to the Technical Certificate. The programs are offered in Gary, Indianapolis, Kokomo, Lafayette, Madison, Muncie, Terre Haute and Sellersburg.

## TECHNICAL CERTIFICATE PROGRAM

### Technical Courses (27 Credits)

Prefix	No.	Title	Semester Credits
ABR	101	Auto Body Repair Fundamentals	3
ABR	103	Auto Paint Fundamentals	3
ABR	104	Collision Damage Analysis and Repair	3
ABR	105	Conventional Frame Diagnosis and Correction	3
ABR	106	Auto Body Repair Applications	3
ABR	107	Automotive Painting Technology	3
ABR	108	Unibody Structural Analysis and Repair	3
ABR	109	Collision Damage Appraising	3
WLD	114	Introductory Welding	3

### General Education Courses (3 Credits)

Prefix	No.	Title	
ENG	101	English Composition or,	
SOC	101	Human Relations	3

### Regional Courses (6 Credits)

	<u>6</u>
Total Credits	36

# **AUTOMOTIVE BODY REPAIR TECHNOLOGY COURSE DESCRIPTIONS**

## **ABR 101—AUTO BODY REPAIR FUNDAMENTALS**

3 Credits

Examines the characteristics of body metals and includes the installation of mouldings, ornaments and fasteners with emphasis on sheet metal analysis and safety.

## **ABR 103—AUTO PAINT FUNDAMENTALS**

3 Credits

Introduces auto paint with emphasis on the handling of materials and equipment in modern automotive technologies.

## **ABR 104—COLLISION DAMAGE ANALYSIS AND REPAIR**

3 Credits

Instruction in analyzing extensive body damage and determining the tools and procedures needed to replace panels.

## **ABR 105—CONVENTIONAL FRAME DIAGNOSIS AND CORRECTION**

3 Credits

The use of tools, frame machines and equipment for frame and chassis repair. Includes study of terms pertaining to front suspension and rear axle. The use of frame gauges, tram gauges and other measuring devices.

## **ABR 106—AUTO BODY REPAIR APPLICATIONS**

3 Credits

Fundamentals of using hand and power tools in the repair of minor collision damage with emphasis on safety.

## **ABR 107—AUTOMOTIVE PAINTING TECHNOLOGY**

3 Credits

Instruction in the total refinishing of an automobile with emphasis on advanced and specialty painting techniques.

## **ABR 108—UNIBODY STRUCTURAL ANALYSIS AND REPAIR**

3 Credits

Unibody repairs, identification and analysis of damage, measuring and fixturing systems, straightening systems and techniques, mechanical component service and knowledge of suspension, and steering systems on front wheel drive unibody vehicles.

## **ABR 109—COLLISION DAMAGE APPRAISING**

3 Credits

Uses of estimation guides, procedures for itemizing damage, abbreviations, parts numbers, and uses of time and money conversion tables. Emphasizes damage inspection, recording on estimate sheets, and the calculation of costs.

## **ABR 110—AUTO BODY POWER TOOLS**

3 Credits

Diagnoses problems associated with the use of power tools in auto body work.

## **ABR 111—AUTO BODY HYDRAULIC TOOLS**

3 Credits

The selection, use, and maintenance of hydraulic tools for auto body repair.

## **ABR 112—BASIC BODY LAB I**

1 Credit

Provides students with the opportunity to develop skills and knowledge in the area of basic body fundamentals.

## **ABR 113—BASIC BODY LAB II**

1 Credit

Provides students with opportunities to develop skills and knowledge in the area of basic body application.

## **ABR 114—COLLISION DAMAGE LAB**

1 Credit

Provides opportunities to develop skills and knowledge in the area of collision damage analysis and repair.

## **ABR 115—AUTO BODY CIRCUITS**

3 Credits

Fundamentals of electrical theory, automotive components and circuits, and troubleshooting techniques. Emphasizes battery construction, function, and operation.

## **ABR 116—SUSPENSION/ALIGNMENT—AB**

3 Credits

Covers suspension and steering parts of an automobile and the theory of wheel alignment and wheel balance. Five wheel alignment angles, steering wheel positioning, vehicle tracking, and wheel balancing.

**ABR 117—AUTO BODY PAINT LAB**

1 Credit

Develops auto painting skills with emphasis on materials and equipment handling.

**ABR 118—AUTOMOTIVE UPHOLSTERY**

2 Credits

Techniques of automobile interior refinishing. Includes study of spring construction, filling, and fabrics. Develops manipulation skills through practice projects on seats, panels, and arm rests.

**ABR 119—GLASS INSTALLATION**

3 Credits

Examines different types of automobile glass and their uses. Removal and installation of front or rear glass. Install and adjust side glass, bond the rear-view mirror support, and use rubber channel and synthetic rubber adhesive.

**ABR 120—FIBERGLASS/PLASTIC REPAIR**

3 Credits

Introduces types of fiberglass and plastic materials used in auto body repair. Covers both interior and exterior applications.

**ABR 121—UNIBODY REPAIR LAB**

1 Credit

Development of skills and knowledge in the area of unibody structural analysis and repair.

**ARB 281-293—SPECIAL TOPICS IN AUTOMOTIVE BODY REPAIR TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).



# AUTOMOTIVE SERVICE TECHNOLOGY

The well-trained automotive service technician is in great demand because of the complexity of modern vehicles and society's transportation needs. Employment in the transportation industry may be found in a franchise automotive business, independent automotive repair centers, tire stores, service stations, leasing companies and government service centers. Some graduates may choose to become self-employed. Additional opportunities for employment are available in related areas such as recreational vehicles, off-highway equipment, insurance business and parts and services.

Automotive Service Technology is a four-semester program requiring 69 credits that leads to an Associate in Applied Science degree. Technical Certificates are also available in specialized areas. The program offers course work in chassis and suspension, two and four wheel alignment, braking systems, electrical fundamentals and electronic systems, carburetor and electronic fuel injection, tune-up, engine rebuild and air conditioning. Classroom lectures are combined with laboratory experiences where students gain diagnostic and service skills.

The program is offered in Gary, South Bend, Fort Wayne, Lafayette, Kokomo, Muncie, Columbus, Madison, Terre Haute, Indianapolis, Richmond, Evansville, Tell City, and Sellersburg.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (51 Credits)

Prefix	No.	Title	Semester Credits
AST	101	Chassis/Suspension Principles	3
AST	102	Two/Four Wheel Alignment	3
AST	104	Start and Charge Systems	3
AST	105	Fuel Systems	3
AST	106	Electronic Ignition Systems	3
AST	107	Engine Principles and Design	3
AST	108	Electrical Accessory Systems	3
AST	201	Heating and A/C Principles	3
AST	202	Computer Engine Controls	3
AST	203	Engine Rebuild	3
AST	204	Automatic Transmission/Transaxle	3
AST	205	Manual Transmission/Transaxle	3
AST	206	Heating and A/C Service and Repair	3
AST	207	Engine Performance	3
AST	208	Differentials/Drivelines	3
AST	209	Automotive Braking Systems	3
ELT	113	Basic Electricity	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
MAT	XXX	Math Course	3
SCI	101	Physical Science	3
SOC	101	Human Relations	3
			<u>3</u>
Total Credits			69

# **AUTOMOTIVE SERVICE TECHNOLOGY COURSE DESCRIPTIONS**

## **AST 101—CHASSIS/SUSPENSION PRINCIPLES**

3 Credits

Various frame designs and suspension systems used in modern vehicles are explained in this course. Repair and replacement of steering linkages and chassis components, both front and rear, are included.

## **AST 102—TWO/FOUR WHEEL ALIGNMENT**

3 Credits

Investigates principles of two and four wheel alignment and wheel balance. Emphasis in the lab is on practical work experience covering all the alignment angles.

## **AST 104—START AND CHARGE SYSTEMS**

3 Credits

An intensive study of the construction, function and principles of operation of starting motors, charging systems and their control systems, with emphasis on diagnosis and bench repair.

## **AST 105—FUEL SYSTEMS**

3 Credits

Study of automotive fuel systems: single, double, and four barrel carburetor and fuel injection systems. Emission controls as they apply to the fuel system. Focuses on shop procedures for trouble-shooting, servicing, replacing or overhauling fuel system and emission control components.

## **AST 106—ELECTRONIC IGNITION SYSTEMS**

3 Credits

Introductory course covering basic principles of electronic ignition systems. Includes functions and testing of the conventional breaker point ignition.

## **AST 107—ENGINE PRINCIPLES AND DESIGN**

3 Credits

Examines engine dynamics, theory of engine operation and design characteristics of all engine assemblies and subassemblies. Also covers the removal, tear-down, visual inspection, precision measuring inspection and cleanup of components and parts and rebuilding engines according to industry standards.

## **AST 108—ELECTRICAL ACCESSORY SYSTEMS**

3 Credits

The function, construction, principles of operation, and troubleshooting techniques for various accessories of

automotive vehicles. Includes electrical accessories: windshield wipers and washers, power seats, power windows, adjustable steering wheels, power tailgates and headlights.

## **AST 109—SMALL GAS ENGINE MAINTENANCE**

2 Credits

Theory, service and repair of small gas engines and their components, emphasizing safety, measurements, lubricants, fuels and engine design.

## **AST 110—SMALL GAS ENGINE OVERHAUL**

2 Credits

Covers disassembly, inspection, measuring, cleaning, machine repair and proper assembly techniques applicable to small gas engine overhaul. Includes carburetor overhaul, ignition system overhaul and maintenance procedures on rebuilt two-cycle and four-cycle engines.

## **AST 111—BASIC AUTO CARE**

2 Credits

Basic instruction in auto maintenance for the automobile owner. Covers routine maintenance, economical operation, elimination of objectionable noises, care of interior and exterior, warranty regulations and emergency road procedures.

## **AST 113—AUTOMOTIVE DIESEL ENGINE THEORY**

3 Credits

Operation of the diesel engine and differences between a diesel and gas engine. Also includes instruction on shop equipment, fuels, oils, seals, bearings, lubrication and cooling system.

## **AST 114—SERVICE ORGANIZATION AND PARTS**

2 Credits

Facility and personnel requirements for efficiently run parts and service departments. Emphasis is on principles, practices and procedures necessary to effectively operate the departments. Includes manufacturers' catalogs and components numbering systems, methods of scheduling time, and techniques for obtaining maximum work efficiency from technicians and specialists.

## **AST 201—HEATING AND A/C PRINCIPLES**

3 Credits

An in-depth study of automotive air conditioning and

heating. Special emphasis on the operation and theory of air conditioning and its components. Vacuum and electrical control circuits are included.

#### **AST 202—COMPUTER ENGINE CONTROLS**

3 Credits

Examines computerized ignition, carburetor, fuel injection and sensors for engine controls on late model passenger cars. Covers theory, diagnostic procedure and repair procedure of the command control, MCU, EEC IV, lean burn and other spark control systems.

#### **AST 203—ENGINE REBUILD**

3 Credits

Precision machines, tools and equipment are needed for rebuilding today's modern engine. Repair, proper assembly and installation techniques applicable to the modern engine are included.

#### **AST 204—AUTOMATIC TRANSMISSION/TRANSAXLE**

3 Credits

A lecture and laboratory course dealing with construction, functions and principles of operation. Emphasizes practical work experience where students overhaul automatic transmissions and transaxle assemblies in the lab.

#### **AST 205—MANUAL TRANSMISSION/TRANSAXLE**

3 Credits

Theory and overhaul procedures related to the manual transmission/transaxle: clutches and transfer cases, diagnosing and overhauling the manual power train.

#### **AST 206—HEATING AND A/C SERVICE AND REPAIR**

3 Credits

Covers diagnosis, service and repair procedures for the heating/air conditioning system. Includes replacement and overhaul procedures for components related to heating/air conditioning system.

#### **AST 207—ENGINE PERFORMANCE**

3 Credits

An advanced course in the theory, diagnosis, and repair of computer controlled ignition systems and fuel systems on late model vehicles using state-of-the-art diagnostic equipment. Emphasis is on recommended manufacturer methods for servicing the computer controlled ignition system.

#### **AST 208—DIFFERENTIALS/DRIVELINES**

3 Credits

A study of differential and driveline theory and overhaul. Includes overhaul and service procedures applicable to gear sets, bearings and seals. Theory and overhaul procedures related to the driveshaft and axle assemblies for front and rear wheel drive vehicles are included.

#### **AST 209—AUTOMOTIVE BRAKING SYSTEMS**

3 Credits

Theory, service and repair of automotive braking systems and their components. Emphasis on hydraulic theory and repair and service of booster units, master cylinder, wheel cylinder, caliper rebuilds, and drum and rotor service.

#### **AST 210—MODIFIED AUTOMOTIVE ENGINES**

3 Credits

This course is offered for advanced transportation students and employed technicians to familiarize participants with higher performance engines, durability and economy. Stresses individuality in constructing performance engines.

#### **AST 211—AUTOMOTIVE DIESEL ENGINE OVERHAUL**

3 Credits

Identification of the components that comprise an automotive diesel engine, and operational theory of the automotive diesel engine. Includes overhaul procedures applicable to an automotive diesel engine.

#### **AST 212—COMPREHENSIVE DIAGNOSIS I**

2 Credits

Diagnosing and repairing the complete automotive system according to manufacturers' recommendations and specifications. Students will complete repair orders as assigned by the instructor.

#### **AST 213—COMPREHENSIVE DIAGNOSIS II**

2 Credits

Students complete work based on flat rate hours. Also includes record keeping, parts procurement and methods for determining unpaid labor lost on flat rate.

#### **AST 281-293—SPECIAL TOPICS IN AUTOMOTIVE SERVICE TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# BARBERING TECHNOLOGY

The Barbering Technology program is designed to provide individuals with the background and expertise needed to establish themselves in a barbering/hairstyling career.

Courses contain basic history and ethics of the profession, basic haircutting, shampooing, bacteriology, sterilization and sanitation. Additional courses include the art of shaving, perming, coloring, processing, and additional work with hairstyling. Shop management, advanced haircutting and a combined techniques course complete the course work.

The program is offered at the United States Penitentiary at Terre Haute.

## TECHNICAL CERTIFICATE PROGRAM

### Technical Courses (65 Credits)

Prefix	No.	Title	Semester Credits
BAR	101	History and Professional Ethics of Barbering	3
BAR	102	Bacteriology, Sterilization and Sanitation	3
BAR	103	Haircutting I	3
BAR	104	Shampoo and Rinsing	3
BAR	105	Shaving	3
BAR	106	Scalp and Hair Treatment I	3
BAR	107	Scalp and Hair Treatment II	3
BAR	108	Theory of Massage and Facial Treatment	3
BAR	109	Basic Chemistry	3
BAR	110	Barbering Anatomy and Physiology	3
BAR	111	Hair Styling I	3
BAR	112	Advanced Haircutting	3
BAR	113	Chemical Hair Processing	3
BAR	114	Hair Coloring	3
BAR	115	Waving Techniques	3
BAR	116	Permanent Waving	3
BAR	117	Shop Management	3
BAR	118	Hair Styling II	3
BAR	119	Combined Techniques Shop Application	2
BAR	120	Haircutting II	3
BAR	121	Haircutting III	3
BAR	122	Sales Techniques	3
Total Credits			65



## BARBERING TECHNOLOGY COURSE DESCRIPTIONS

### **BAR 101—HISTORY AND PROFESSIONAL ETHICS OF BARBERING**

3 Credits

Includes the origin of the barber; Greek, Roman and English influence on barbering and modern trends. Includes the ethical conduct and standards of the barbering profession.

### **BAR 102—BACTERIOLOGY, STERILIZATION AND SANITATION**

3 Credits

Examines types of bacteria and their relationship to barbering. Emphasizes the sterilization and sanitation of barbering implements and facilities.

### **BAR 103—HAIRCUTTING I**

3 Credits

An introductory course in haircutting: surveying implements and their correct usages.

### **BAR 104—SHAMPOOING AND RINSING**

3 Credits

Deals with the benefits of proper shampooing and rinsing. Techniques for preparing the patron, selecting the shampoo and performing the services.

### **BAR 105—SHAVING**

3 Credits

Develops the techniques of honing and stropping a straight razor, and the fundamentals of shaving. Includes fundamentals and techniques of styling mustaches and beards and identifying various styles, cutting and shaping of mustaches and beards.

### **BAR 106—SCALP AND HAIR TREATMENT I**

3 Credits

The study of the skin, scalp, and hair: functions, purposes and problems. Examines need for scalp and hair treatments and different types of treatments.

### **BAR 107—SCALP AND HAIR TREATMENT II**

3 Credits

Focuses on common names and terms, the nature, effects and safe use of high frequency current for therapy purposes and how and when to perform light therapy.

### **BAR 108—THEORY OF MASSAGE AND FACIAL TREATMENT**

3 Credits

Theory of applications in massage treatment. Skill

development in massage movements of face and scalp. Includes different types of facials, supplies required and proper steps in the selection of products and performance of facials.

### **BAR 109—BASIC CHEMISTRY**

3 Credits

Basic fundamentals of chemistry as applied to Barbering: composition and chemical effects of barbering supplies.

### **BAR 110—BARBERING ANATOMY AND PHYSIOLOGY**

3 Credits

Basic study of the physiology of the cell, tissue, organs and systems, and their interrelationships in the human organism.

### **BAR 111—HAIR STYLING I**

3 Credits

Surveys various cutting patterns, correct balance, height in styling and selecting correct styles for patrons.

### **BAR 112—ADVANCED HAIRCUTTING**

3 Credits

Includes basic hairstyling, razor and comb techniques, hair sectioning, wet or dry cutting, and other advanced techniques.

### **BAR 113—CHEMICAL HAIR PROCESSING**

3 Credits

The fundamentals, techniques and terminology of straightening and problems associated with chemical hair processing.

### **BAR 114—HAIR COLORING**

3 Credits

Surveys various methods of hair coloring, product knowledge, haircoloring procedures, and lightening and bleaching procedures.

### **BAR 115—WAVING TECHNIQUES**

3 Credits

Techniques of waving hair including fingerwaving and heat waving.

### **BAR 116—PERMANENT WAVING**

3 Credits

Examines processes, techniques and materials for permanent hair waving.

### **BAR 117—SHOP MANAGEMENT**

3 Credits

Techniques for establishing a barbershop: record keeping, personnel management, supply management and public relations.

### **BAR 118—HAIR STYLING II**

3 Credits

Modern-day styles and cutting techniques for their achievement.

### **BAR 119—COMBINED TECHNIQUES SHOP APPLICATION**

2 Credits

Students are expected to perform any of the tasks that have been assigned in the entire program with at least 75 percent accuracy and efficiency.

### **BAR 120—HAIRCUTTING II**

3 Credits

Provides laboratory practice in the art of haircutting in preparation for the state licensing examination.

### **BAR 121—HAIRCUTTING III**

3 Credits

Additional laboratory practice in preparation for the state licensing examination.

### **BAR 122—SALES TECHNIQUE**

3 Credits

Provides an overview of selling and selling skills, including the work of the salesperson. Considers the psychology of selling and develops selling skills through a series of practical situations.

### **BAR 150—INTRODUCTION TO COSMETOLOGY**

3 Credits

Includes theory of long hair graphics, haircutting, roller and pincurl placements, blow-dry and ironing, line and design, chemical services (perms, chemical relaxers, hair coloring) and skin care.

### **BAR 151—COSMETOLOGY I**

2 Credits

Covers hair color, hair-related disorders, thermal hair straightening, manicuring, hair shaping and hair styling.

### **BAR 152—COSMETOLOGY LABORATORY I**

5 Credits

Provides for practical applications of long hair graphics,

haircutting, roller and pincurl placements, blow-dry and ironing, line and design and chemical services.

### **BAR 153—COSMETOLOGY LABORATORY II**

2 Credits

Application of hair color, hair shaping, hair styling, manicuring, thermal hair straightening and thermal waving are covered.

### **BAR 154—COSMETOLOGY CLINIC I**

5 Credits

Practical applications of hair cutting, blow-dry and ironing, permanent waving, facials, hair coloring, wigs, manicuring and hair relaxing are provided.

### **BAR 155—COSMETOLOGY II**

2 Credits

Written and practical review of hair color, hair-related disorders, thermal hair graphics, haircutting, roller and pincurl placements, blow-dry and ironing, line and design, chemical services and skin care in preparation for pre-state examination.

### **BAR 158—COSMETOLOGY LAB III**

2 Credits

Advanced training and application of manicuring, nail application, color techniques including bleaching and tinting, finger waving, skin care and make-up techniques.

### **BAR 161—COSMETOLOGY CLINIC II**

6 Credits

Practical application of haircutting, blow-dry and ironing, permanent waving, facials, hair coloring, wigs, manicuring and hair relaxing.

### **BAR 162—COSMETOLOGY CLINIC III**

5 Credits

Practical application of haircutting, blow-dry and ironing, permanent waving, facials, hair coloring, wigs, manicuring and hair relaxing.

### **BAR 281-293—SPECIAL TOPICS IN BARBERING TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# BUILDING CONSTRUCTION TECHNOLOGY

The Building Construction Technology program develops skilled technicians in one of several specialties within the building construction industry. Included in the program are courses in cabinetry, carpentry, electrical wiring, masonry, plumbing, heating, air conditioning, refrigeration, blueprint reading, estimating, CAD, and the safe use of tools and materials. The flexibility of the program allows students to pursue a full course of study or to take courses only as needed to update skills.

A two-year program, requiring 64 semester hours leads to the Associate in Applied Science degree. Technical Certificates and/or Career Certificates are also available in specialized areas such as framing, masonry, plumbing, electrical wiring, cabinetry and construction management. Programs are offered at Fort Wayne, Kokomo, Muncie, Richmond and Sellersburg.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (15 Credits)

Prefix	No.	Title	Semester Credits
BCT	101	Introduction to Carpentry	3
BCT	104	Floor and Wall Layout and Construction	3
BCT	106	Construction Blueprint Reading I	3
DCT	103	CAD Fundamentals or	
DCT	204	Architectural CAD	3
ELT	104	Computer Fundamentals For Technology	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II or	
ENG	103	Speech or	
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
HUM	102	Ethics	3
SOC	101	Human Relations	3
SCI	101	Physical Science	3

### Regional Courses (31 credits)

	<u>31</u>
Total Semester Credits	64

# **BUILDING CONSTRUCTION TECHNOLOGY COURSE DESCRIPTIONS**

## **BCT 101—INTRODUCTION TO CARPENTRY**

3 Credits

Introductory course for Building Construction Technology. Presents history of building construction to present-day applications, emphasizing future trends and construction as a career. Provides practice in the operation, maintenance and safety of various tools including the builder's level and transit.

## **BCT 102—CONSTRUCTION MATERIALS**

3 Credits

Develops skills in identifying building materials commonly used in modern building construction. The student gains experience in the application of locally accessible materials. Students will be involved in research and the appropriate use of materials with an emphasis on the latest information concerning material application.

## **BCT 104—FLOOR AND WALL LAYOUT AND CONSTRUCTION**

3 Credits

Examines the design and construction of floor and wall systems. Develops skills needed for layout and construction of floor and wall systems from blueprints and professional planning.

## **BCT 105—ROOF CONSTRUCTION**

3 Credits

Study of the design and construction of roof systems. Emphasizes use of the framing square for traditional rafter and truss roofing. Instructs students in additional up-to-date techniques.

## **BCT 106—CONSTRUCTION BLUEPRINT READING I**

3 Credits

Instruction and practice in the use of working drawings and applications from the "print" to the "work". Units include relationship of views and details, interpretation of dimension, transposing scale, tolerances, electrical symbols, sections, material list, architectural plans, room schedules, and plot plans.

## **BCT 107—FURNITURE DESIGN AND CONSTRUCTION**

3 Credits

Develops skills in the design, layout, and construction of furniture. Students are introduced to furniture styles, types of materials, and methods of construction.

## **BCT 109—FURNITURE REFINISHING AND REPAIR**

3 Credits

Develops knowledge and skills in the technology of refinishing and repairing furniture. Introduction to proper procedures used in stripping, bleaching, caning, veneering, and various types of wood fillers.

## **BCT 110—CABINETRY**

3 Credits

Introduction to basic skills and technology of cabinet-making, focusing on cabinet design and layout, terminology, tools, and skill requirements.

## **BCT 111—WOODWORKING FUNDAMENTALS**

3 Credits

Introduction to basic skills and technology of wood-working, focusing on tool and machine operations. Students are instructed in proper jointry and material selection.

## **BCT 114—EXTERIOR TRIM**

3 Credits

The focus of this course is to develop necessary skills in the finishing of the exterior of a building. The student obtains skills in the installation of the cornice, windows, doors and various types of sidings used in today's market place.

## **BCT 115—AUXILIARY BUILDING DESIGN AND CONSTRUCTION**

3 Credits

Develops carpentry skills in construction of garages, storage barns, wood decks and patios, privacy fences, and gazebos.

## **BCT 201—RESIDENTIAL WIRING**

3 Credits

Covers the practice of residential wiring including electrical service, metering equipment, lighting, switches, outlets, and other common components. Also includes methods of installation and maintenance of the residential wiring system in accordance with the current National Electrical Code.

## **BCT 202—PLUMBING FUNDAMENTALS**

3 Credits

The operation and function of home plumbing systems. Introduces pipe drawings, isometric pipe layout and blueprint symbols. Roughing in plumbing and installing



drainage, water systems, fixtures, and water heaters in compliance with the plumbing code.

### **BCT 203—MASONRY CONCRETE FUNDAMENTALS**

3 Credits

Materials and methods of construction with concrete block, brick and forming for poured concrete. Includes study in preparation of the building site.

### **BCT 204—CONSTRUCTION ESTIMATING & SPECIFICATIONS**

3 Credits

Deals with the estimating process for residential construction. Emphasis on reading blueprints and specifications. Also labor and material take-off and pricing.

### **BCT 205—ADVANCED PROJECTS I**

3 Credits

Problem-solving applied to common problems in construction. Emphasis is on the cooperation between several trades in the construction industry. Application of skills needed to resolve the problem.

### **BCT 206—ADVANCED PROJECTS II**

3 Credits

Problem-solving applied to common problems in construction. Emphasis is on the cooperation between several trades in the construction industry allowing the student to practice necessary skills to resolve the problem. Concentrates on decision-making skills.

### **BCT 208—PROJECT PLANNING PRODUCTION**

3 Credits

Provides opportunity for the students to develop knowledge and skills under limited supervision in the design, selection of materials, project planning and production systems used in the fabrication of cabinets and furniture.

### **BCT 210—VINYL AND ALUMINUM SIDING APPLICATIONS**

3 Credits

In-depth examination of common and unusual problems encountered by a vinyl and aluminum siding applicator on both new jobs and existing structures. Includes sidings, soffit, fascia, rain gutter, and covering of trims and windows. Emphasis is on actual installation covering a wide variety of experiences. Also covers standing seam and corrugated metal roofing, metal carports, awnings, metal storage buildings, ventilators and flashings.

### **BCT 211—ORGANIZATION AND PROCEDURES**

3 Credits

Introduction to organization and management procedures focusing on subcontracting, equipment/tool inventories, job materials, codes, inspections and permits.

### **BCT 212—CONSTRUCTION BLUEPRINT READING II**

3 Credits

Designed to develop proficiency in the interpretation of complex blueprints, including notations, conventional symbols, and dimensions. Introduction to basic architectural drafting skills.

### **BCT 213—MOTOR AND MOTOR CONTROLS**

3 Credits

Basic study in wiring and design of motor control circuits including circuit and conductor calculations, motor circuits and controls. Also control transformers and service and circuit layout for motor control and machine tool hookup and control.

### **BCT 214—WALL AND FLOOR COVERINGS**

3 Credits

Modern materials and techniques of interior floor and wall coverings; instruction on how to assess the durability and maintenance of the materials, and techniques in correct installation procedures.

### **BCT 216—ADVANCED RESIDENTIAL DESIGN**

3 Credits

Study of residential floor plans and elevations. Analysis of contemporary living patterns, cost, privacy, convenience, and efficiency, coordinated with needs. Exterior styles are compared for cost and aesthetic values. Multiple housing, duplex arrangements, apartments and condominiums. Floor plans, elevations, and perspective drawing will be made to incorporate the conclusions reached from the above research.

### **BCT 217—PLUMBING MECHANICAL INSTALLATION**

3 Credits

Develops skills in the use of plumbing equipment. Covers residential and commercial installations troubleshooting, services, and repair in conformance with codes.

### **BCT 218—COMMERCIAL PLUMBING INSTALLATIONS AND ESTIMATING**

3 Credits

Offers in-depth study of commercial plumbing with

emphasis on code requirements and commercial blueprints. Instruction in cost estimation for a complete plumbing system.

**BCT 219—SURVEY AND MEASUREMENT**

3 Credits

Fundamentals of surveying including use of the transit, reading angles, land descriptions, restrictions, and legal problems. Covers topographical maps and their uses.

**BCT 220—ELECTRICAL TROUBLESHOOTING TECHNIQUES**

3 Credits

Methods and techniques for troubleshooting appliances, motors, motor controls, relay wiring, residential wiring, commercial wiring, and industrial wiring systems.

**BCT 221—INTERIOR TRIM**

3 Credits

Students will develop basic knowledge, skill, and awareness of interior trim. Drywall, moldings, interior doors, kitchen cabinets, and baseboard moldings will be installed by the student.

**BCT 222—COMMERCIAL—INDUSTRIAL WIRING**

3 Credits

Wiring methods and material selection for commercial and industrial wiring systems. Includes mechanical installation of hardware as well as electrical design, layout, and installation. Emphasis is on tool use, material selection and installation.

**BCT 223—PLUMBING DESIGN AND INSTALLATION**

3 Credits

Provides techniques for working with pipes and fittings. Covers residential and commercial electric hot water heating systems, private well water systems, and electrical components of plumbing systems.

**BCT 225—FABRICATION**

3 Credits

Study of the concepts and techniques of industrialized housing. Covers prefabrication, jigs and rigging including mobile homes, sectional homes and modular homes.

**BCT 226—CONSTRUCTION SUPERVISORY TRAINING**

3 Credits

Examines the duties and responsibilities of the supervisor of a construction crew. Develops the leadership abilities and techniques necessary to deal with special problems in daily construction work. Gives attention to adjusting to the role of supervisor and indicates what is expected from each member of the crew.

**BCT 227—AC/DC Circuits**

3 Credits

Studies basic electrical principles for both DC and AC circuits. This includes electron theory, Ohm's Law, Watt's Law, Kirchoff's Laws, series circuits, parallel circuits, series-parallel circuits, electromagnetism and electromagnetic induction, inductance and inductive reactance, capacitance and capacitive reactance, resistance and resistive circuits, LR time constants, LR circuits, RC circuits, LRC circuits, impedance and phase angles for current, voltage, resistance, reactance and power. Also studies components to include resistors, inductors, capacitors and transformers.

**BCT 281-293—SPECIAL TOPICS IN BUILDING CONSTRUCTION TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

## COLLEGE/INDUSTRY JOB TITLE TRAINING

The College/Industry Job Title Training program provides linkage between Ivy Tech and business and industry. Students who enroll in this program are provided with a combination of academic instruction in the College and specific skill training at the job site. Student programs are individualized and tailored to the needs of the employer and student. A Technical Certificate is awarded following completion.

The technical level of training appropriate to the program will require curriculum offerings that encompass three areas of preparation. They are:

*Technical Concentrate*—Those skills and knowledge that are unique and required in order to successfully perform a specific technical job.

*Technical Related*—Those fundamental technical principles which support the development of skills in the Technical Concentrate area.

*Basic Related*—Those basic or general knowledge concepts that enable the student to develop knowledge and skills in the Technical Related and Technical Concentrate areas.

The program is conducted through the College's Business and Industry Training Division and interested students should contact this office. Programs are offered in Lafayette and Terre Haute.

# DRAFTING/CAD TECHNOLOGY

The Drafting/CAD program reflects state of the art technology using Computer-Aided Drafting (CAD) equipment. This equipment, along with the traditional methods of drafting, provides students with necessary skills to be competitive in the job market. The program is designed to provide the student with two areas within which to minor; one in Mechanical and one in Architectural Drafting. These two disciplines have common areas of study that develop a working knowledge used within the building and manufacturing industries.

A two-year course, requiring completion of 64 credits, leads to an Associate in Applied Science degree. Technical Certificates are also available in specialized areas. Programs are offered at Bloomington, Columbus, Elkhart, Evansville, Fort Wayne, Gary, Indianapolis, Kokomo, Lafayette, Logansport, Muncie, South Bend, Sellersburg, Terre Haute, Hammond, and Valparaiso. The Associate in Science is offered in Elkhart.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (27 Credits)

Prefix	No.	Title	Semester Credits
DCT	102	Technical Graphics	3
DCT	103	CAD Fundamentals	3
DCT	104	Product Drafting	3
DCT	105	Facilities Design and Layout	3
DCT	106	Descriptive Geometry	3
DCT	107	Advanced CAD	3
DCT	202	CAD Programming Language	3
DCT	203	Statics and Strength of Materials	3
DCT	217	Product Design	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
MAT	101	Algebra I	3
MAT	103	Geometry/Trigonometry	3
SOC	101	Human Relations	3
SCI	103	Physics I	3
ENG	201	Technical Writing	3

### Regional Courses (19 Credits)

19

To be selected from Architectural or Mechanical Courses listed below:

#### Architectural Drafting

DCT	108	Residential Drafting
DCT	109	Construction Materials and Specifications
DCT	110	Architectural Rendering
DCT	201	Schematic Drafting
DCT	204	Architectural CAD
DCT	206	Mechanical and Electrical Equipment

#### Mechanical Drafting

AMT	101	Manufacturing Processes
DCT	201	Schematic Drafting
DCT	205	Introduction to Plastics
DCT	207	Die Design Drafting
DCT	214	Machine Design
DCT	215	Electronic Drafting/CAD
DCT	216	Jig and Fixture Design
DCT	218	CAD/CAM Design



### **Architectural Drafting Cont.**

DCT	208	Structural Detailing
DCT	209	Estimating/CAD
DCT	210	Surveying
DCT	211	Commercial Structures I
DCT	212	Commercial Structures II
DCT	213	CAD Mapping
DCT	281-293 Special Topics in Drafting/CAD Technology (1-5 Credits)	

### **Mechanical Drafting Cont.**

DCT	219	Machine Tool Operations
DCT	281-293 Special Topics in Drafting/CAD Technology (1-5 Credits)	

Total Credits

64

## **DRAFTING/CAD TECHNOLOGY COURSE DESCRIPTIONS ASSOCIATE IN APPLIED SCIENCE**

### **DCT 101—BASIC DRAFTING**

3 Credits

This is an introductory course in mechanical drafting for students who have had no previous drafting experience or who wish to review basic drafting techniques.

### **DCT 102—TECHNICAL GRAPHICS**

3 Credits

An introductory course which strengthens basic drafting skills to a proficient, technician level. Areas of study include geometric constructions, orthographic projections with auxiliary views, dimensioning, sectioning, and introductory tolerancing. Other areas of study are isometric and oblique views of parts.

### **DCT 103—CAD FUNDAMENTALS**

3 Credits

This course will introduce the student to the fundamentals of CAD (computer-aided drafting). Topics covered will be CAD overview, system, software, the use of CAD systems in creating geometry, screen control, and plotting.

### **DCT 104—PRODUCT DRAFTING**

3 Credits

An introduction to the "set" concept of working drawings both in detailing and assembly. Fastening devices, thread symbols and nomenclature, surface texture symbols, classes of fits, and the use of parts lists, titles, and revision blocks are presented. The basics of product design and the design process will be introduced.

### **DCT 105—FACILITIES DESIGN AND LAYOUT**

3 Credits

Focuses on the various aspects of building construction, structural applications, space planning and traffic

flow analysis. Presentation drawings and working drawings are a part of this course.

### **DCT 106—DESCRIPTIVE GEOMETRY**

3 Credits

This course introduces fundamental principles in developing graphical solutions to engineering problems. Many of the topics covered in this course will lend themselves to sheet metal developments, transition pieces, and bend allowances.

### **DCT 107—ADVANCED CAD**

3 Credits

This course is designed to instruct students in fundamentals of 3-D modeling for design. Topics covered will be overview of modeling, graphic manipulation, part structuring, coordinate systems, and developing strategy of model geometry.

### **DCT 108—RESIDENTIAL DRAFTING**

3 Credits

This is a basic course covering residential planning and drafting. Areas of study will be interior planning, structural design, and development of a working drawing. The student will design a residence using accepted building standards from information given in class.

### **DCT 109—CONSTRUCTION MATERIALS AND SPECIFICATIONS**

3 Credits

This course will introduce the student to the different construction materials, their composition and application. Specifications of materials, construction contracts and application required in the building industry are studied.

**DCT 110—ARCHITECTURAL RENDERING**

3 Credits

Presents a survey and history of pictorial drawings. Studies light and color, rendering media, and application of different techniques and media through a series of exercises.

**DCT 201—SCHEMATIC DRAFTING**

3 Credits

This course presents the systematic layout of various types of schematic drawings. Students will prepare finished drawings for the manufacture or installation of plumbing, heating, electrical, electronic and fluid-power type drawing. No attempt is made here to teach engineering design of these highly specialized areas, but the concepts of design will be covered.

**DCT 202—CAD PROGRAMMING LANGUAGE**

3 Credits

This course covers the use of languages to program advanced commands. A project-oriented course, with projects individualized according to students' interests.

**DCT 203—STATICS AND STRENGTH OF MATERIALS**

3 Credits

This course is designed to instruct the student on the fundamentals of theory and application of mechanics. Areas covered are vectors, equilibrium, application involving beams, trusses, and cables. Stress-strain relationships, axially loaded members, torsion, shear and bending moment diagrams, and deflection of beams and connections are also studied.

**DCT 204—ARCHITECTURAL CAD**

3 Credits

This is an advanced computer-aided course which covers architectural design. This course will include floor plans, details, and presentation drawings.

**DCT 205—INTRODUCTION TO PLASTICS**

3 Credits

Introduces the student to the major plastics processing industries, techniques and the most widely used plastics polymers—their applications and properties.

**DCT 206—MECHANICAL AND ELECTRICAL EQUIPMENT**

3 Credits

This course focuses on the mechanical and electrical layout drawings required for a structure. Electrical load calculations, wire sizing, and circuits are studied.

Plumbing requirements, fixture units, and pipe sizing are calculated and drawn. Heating systems, duct layout, and sizing are also a part of this course.

**DCT 207—DIE DESIGN DRAFTING**

3 Credits

The student studies the drafting, detailing, and design of blanking, piercing, and forming dies. Material reaction to shear, cutting clearances, and nest gauging are all a part of this course.

**DCT 208—STRUCTURAL DETAILING**

3 Credits

This course focuses on the detailing of commercial structural members, their connections, materials, and methods of construction. Primary areas of concentration will be the traditional materials such as reinforced concrete, masonry, steel, and timber.

**DCT 209—ESTIMATING/CAD**

3 Credits

A basic course which introduces estimating procedures used in the building industry. Students will study material takeoffs, estimating overhead expenses, contingencies, labor, and equipment. This course may involve the use of computers to generate takeoffs and do pricing.

**DCT 210—SURVEYING**

3 Credits

Introduces fundamentals of surveying including use of the transit, reading angles, land descriptions, restrictions, and legal problems. Examines topographical maps and their uses.

**DCT 211—COMMERCIAL STRUCTURES I**

3 Credits

Focuses on the planning and drawing of commercial structures. Attention is directed to a presentation drawing and working drawing for concrete structures and steel structures.

**DCT 212—COMMERCIAL STRUCTURES II**

3 Credits

Focuses on the planning and drawing of commercial structures. Attention is directed to working drawings for pre-engineered and concrete/steel structures.

**DCT 213—CAD MAPPING**

3 Credits

This advanced computer-aided drafting course covers the concepts of map making. Civil engineering appli-

cations, plat mapping, and topographical mapping areas will be covered.

#### **DCT 214—MACHINE DESIGN**

3 Credits

This non-calculus course is designed to present practical solutions to mechanical design problems. The student will study the design of machine elements including shafts, bearings, keys, pins, and springs. Also the geometry and drafting of cams and gears and the study of linkages are included.

#### **DCT 215—ELECTRONIC DRAFTING/CAD**

3 Credits

This course introduces the student to electronic schematics, drill indexing, and printed circuit board design. Emphasis is on the creation and manipulation of basic symbols, connection diagrams, block and logic diagrams including the use of figure parts and data extract. This course can be taught either as a board drafting course or as a computer-aided drafting course.

#### **DCT 216—JIG AND FIXTURE DESIGN**

3 Credits

This course introduces the process of drafting and design as applied to tooling. Emphasis is placed on tooling, locators, supports, holding devices, clearances, and design as it pertains to jig and fixtures.

#### **DCT 217—PRODUCT DESIGN**

3 Credits

This course provides the student an opportunity to uti-

lize all previously acquired knowledge in product drafting to the design of a new or existing consumer product. The student will consider the function, esthetics, cost, economics, and marketability of the product. A research paper and product description are required.

#### **DCT 218—CAD/CAM DESIGN**

3 Credits

This advanced computer-aided drafting and computer-numerical control course covers the development of various machine routines. Primary areas of study will be the control of both the CNC mill and lathe. Topical areas of discussion will include material handling and robotics.

#### **DCT 219—MACHINE TOOL OPERATIONS**

3 Credits

This course is designed to teach the student to become familiar with the various machine tool operations available. The types of machines, their capabilities, limitations, set-up time, degree of accuracy, etc., will be covered in a lecture/lab (observation/some hands-on in the machine shop setting).

#### **DCT 281-293—SPECIAL TOPICS IN DRAFTING/ CAD TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# ELECTRONICS TECHNOLOGY

The Electronics Technology program provides comprehensive instruction to prepare students for entry into a wide range of positions in the electronics field. While receiving a core of general electronics, the student has a choice of various technical electives in which to specialize in areas such as industrial electronics, digital techniques and communications systems, robotics, automotive and biological applications. Post-graduate specialization courses are also available.

Completion of the two year Electronics Technology program of 69 credits leads to an Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. Programs are offered at Gary, Hammond, Valparaiso, Elkhart, South Bend, Fort Wayne, Lafayette, Kokomo, Logansport, Anderson, Marion, Muncie, Terre Haute, Indianapolis, Richmond, Bloomington, Columbus, Madison, Evansville and Sellersburg.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (36 Credits)

Prefix	No.	Title	Semester Credits
ELT	100	Circuits I	4
ELT	101	Circuits II	4
ELT	102	Electronic Circuits Lab	2
ELT	103	Digital Principles	4
ELT	104	Computer Fundamentals for Technology	3
ELT	105	Solid State I	4
ELT	106	Digital Applications	4
ELT	201	Solid State II	4
ELT	202	Microprocessors	4
ELT	204	Linear Integrated Circuits	3

### General Education Courses (21 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	201	Technical Writing	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
SCI	103	Physics I	3
SCI	105	Physics II or	
SCI	203	Advanced Physics	3
SOC	101	Human Relations	3

### Regional Courses (12 Credits)

	<u>12</u>
Total Credits	69



# ELECTRONICS TECHNOLOGY COURSE DESCRIPTIONS

## ELT 100—CIRCUITS I

4 Credits

Introduction of DC & AC theory, use of test equipment and fabrication skills. Topics include study of DC electrical circuits, Ohm's Law, Kirchhoff's Laws, series and parallel circuits, power, introductory magnetism, ammeters, voltmeters, ohmmeters, inductance, capacitance and implementation of basic principles of electrical measuring devices including verification of lecture materials in the laboratory.

## ELT 101—CIRCUITS II

4 Credits

A study of DC and AC electrical circuits network theorems, operator, phasors, reactances, impedances, phase relationships, power, resonance, ideal and air-core transformers and an introduction to graphical techniques and transients.

## ELT 102—ELECTRONIC CIRCUITS LAB

2 Credits

Laboratory experiments to complement Circuits I. Hands-on practice in the use of shop test equipment. Includes troubleshooting skills and care of equipment.

## ELT 103—DIGITAL PRINCIPLES

4 Credits

Introduces digital electronics including logic gates and combinational logic circuits. Also logic circuit minimization techniques, digital decoders/encoders and multiplexers/demultiplexers, flip-flops and asynchronous counters.

## ELT 104—COMPUTER FUNDAMENTALS FOR TECHNOLOGY

3 Credits

Provides an introduction to microcomputer hardware, applications software, and programming. Emphasis is placed on computer literacy, operating systems, and structured language programming. Commonly used microcomputer applications are surveyed.

## ELT 105—SOLID STATE I

4 Credits

A basic introduction to the theory and operation of semiconductor devices and circuits. Topics covered are signal and rectifying diodes and bipolar junction transistors, single and multistage amplifiers, discrete differential and operational amplifiers, power supplies, regulators and oscillator circuits.

## ELT 106—DIGITAL APPLICATIONS

4 Credits

Advanced study of digital systems, including memory and D/A and A/D conversion. Construction of specified timing, circuits, and design driver display systems; design of selected register, counters, and arithmetic circuits, and validation of operation. Hardware and general microprocessor system organization are included.

## ELT 107—INDUSTRIAL ELECTRONICS

4 Credits

An overview of electronics applied in the industrial setting. Introduction to various applications of the industrial system and how electronics is applied to these systems. Introduces power machines, polyphase systems, solid state controls, transducers, and industrial computer systems.

## ELT 108—COMMUNICATIONS ELECTRONICS

3 Credits

An overview of electronics applied to the communications field. Provides various hands-on applications of communication systems and various subsystems. Introduces voice communications, video communications, and data communications using various systems.

## ELT 109—TELECOMMUNICATIONS

3 Credits

Examines various methods in transmitting digital data from one location to another. Includes both classical modems over telephone lines and nontraditional methods.

## ELT 110—FIBER OPTICS

3 Credits

An overview of fiber optics. Surveys uses for fiber optics, advantages, disadvantages, cable details, connectors, splices, sources, detectors, and fiber optic systems.

## ELT 111—SATELLITE COMMUNICATIONS

3 Credits

Theory of satellite operation, site perimeters for, and methods of site preparation, and installation of satellite dish for TVRO. Includes decision making regarding type of dish for use in a particular installation.

## ELT 112—BIO-MEDICAL ELECTRONICS I

3 Credits

Study of medical electronics equipment, including ECG, EEG defibrillators, heart monitors, other monitoring equipment, and respiratory equipment.

### **ELT 113—BASIC ELECTRICITY**

3 Credits

Study of electrical laws and principles pertaining to DC and AC circuits. Includes current, voltage, resistance, power, inductance, capacitance, and transformers.

### **ELT 115—INTRODUCTION TO LASERS**

3 Credits

An introduction to laser action, laser beam characteristics, types of lasers, safety considerations, general laser applications and laser and optical equipment. It serves to teach students the basics of laser, laser systems, and applications, as well as to prepare beginning laser students for future courses.

### **ELT 201—SOLID STATE II**

4 Credits

In-depth study of special semiconductor devices and circuits. Includes field effect transistors, uni-junction transistors, opto-electronic devices, thyristors, and amplifier biasing.

### **ELT 202—MICROPROCESSORS**

4 Credits

Introduction to microprocessor system organization, operation and programming. A microprocessor instruction set is investigated and sample program routines are analyzed for their operation. Laboratory experience includes the operation and programming of microcomputer systems.

### **ELT 203—INTRODUCTION TO INDUSTRIAL CONTROLS**

3 Credits

Basics of industrial controls as related to industrial electronics. Includes basic and pilot control devices such as circuit layouts, industrial schematics, reduced voltage starters and multispeed controllers. Also transformer hookups and circuit protection.

### **ELT 204—LINEAR INTEGRATED CIRCUITS**

3 Credits

Introduction to operational amplifiers (Op Amps), characteristics and operations. Covers filters, inverters, noninverters, feedback operations, gain linear regulators, switching regulators, voltage devices, voltage comparators, electronic timers, voltage controlled oscillators, phased locked loops, frequency to voltage conversion.

### **ELT 205—PERIPHERALS**

3 Credits

In-depth study of peripherals used with typical com-

puters and interfacing of the microcomputer with peripherals. Includes a study of data communications hardware and techniques. How to design circuits to interface microprocessors with industrial equipment. Includes the interfacing of microcomputer systems with input and output transducers for control systems. Techniques for logical troubleshooting of microcomputer systems.

### **ELT 206—ANALOG TROUBLESHOOTING TECHNIQUES**

3 Credits

Techniques for logical troubleshooting of electronic circuits and simple systems with emphasis on systematic diagnostic methods, signal tracing, and signal injection methods. Provides experience in the use of shop test equipment and electronic communication skills.

### **ELT 207—DIGITAL TROUBLESHOOTING TECHNIQUES**

3 Credits

Techniques for logical troubleshooting of microcomputers. Includes nodal testers, microcomputer controlled testers, static stimulus testers, signature analysis, and logic analyzers. System oriented troubleshooting procedures are emphasized.

### **ELT 208—MICROWAVE COMMUNICATIONS**

3 Credits

Focuses on microwave transmission lines, waveguides, waveguide components including hybrid couplers, attenuators, microwave filters, phase shifters, T-junctions, irises, and microwave tubes.

### **ELT 209—ADVANCED COMMUNICATIONS ELECTRONICS**

3 Credits

The basics of microwave principles and in-depth study of matching techniques for transmission lines. Includes introduction to antennas and a thorough study of television operation.

### **ELT 210—VCR THEORY**

3 Credits

Video cassette recorder theory with VCR troubleshooting techniques and VCR test equipment usage. Includes diagnostic testing through signal injection and signal tracing. Emphasis on recording, playback and servo circuits. Quantitative and qualitative knowledge of fundamental principles and terms used in VCR theory and repair are covered.

### **ELT 211—WAVE OPTICS AND COMPONENTS**

3 Credits

Treats the wave nature of light as manifested in interference, diffraction and polarization phenomena in optical systems. Analyzes and uses optical components that modify, control or detect light. Includes light sources, wave nature of light interference, diffraction, polarization, holography, beam splitters, filters, isolators, gratings, polarizers and nonlinear optical materials. Laboratory stresses hands-on experience in application/evaluation of wave optic devices in typical optical systems.

### **ELT 212—NETWORKING**

3 Credits

Study of types of protocol used in data communications systems. Includes an overview of networking, networking control, and interfacing. Areas of emphasis include protocols, packet switching systems, and local area networks.

### **ELT 213—BIO-MEDICAL ELECTRONICS II**

2 Credits

Examines medical support systems, including X-ray equipment, respiration, and analyzers, and their maintenance. Also medical ultrasound, electrosurgery units and mechanical recorders. Prepares for licensing and certification.

### **ELT 214—INDUSTRIAL INSTRUMENTATION**

3 Credits

A study of techniques and practices involved in the calibration of industrial control equipment. Provides emphasis on tear-down, assembly, alignment, calibration, and operations of instruments.

### **ELT 215—LASER SYSTEMS AND APPLICATIONS**

3 Credits

In-depth coverage of laser types and applications: ion, molecular, liquid, solid state and semiconductor lasers. Flash lamps, powers supplies (CW and pulsed) and energy transfer mechanisms for each laser type are examined. Includes lasers in medicine, surgery, dentistry, communications, range finding, alignment, track-

ing, welding, cutting, drilling, data recording and display. Laboratory experiments stress hands-on operation and trouble shooting of each laser type and small scale examples of applications.

### **ELT 216—LASER AND OPTICAL MEASUREMENTS**

3 Credits

Examines the instruments and methods available for evaluating laser light and supporting optical equipment. Includes an introduction to radiometry/photometry and typical energy/power detectors. Photographic recording mediums and major optical measuring instruments (spectrometers, spectrophotometers, monochromators and interferometers) and methods are also covered. Laboratory experiments stress hands-on experience with current optical measuring equipment and methods.

### **ELT 217—LASER PROJECTS**

3 Credits

Laser projects is an individual project class in which students work directly with the instructor while building laser-related project(s).

### **ELT 218—GEOMETRICAL OPTICS AND COMPONENTS**

3 Credits

Applies mathematical and graphical techniques to the reflection/refraction of light at typical optical surfaces. Analyzes and uses typical optical components. Includes ray tracing, imagining with lenses, F-stops and apertures, mirrors, lenses, prisms, windows, optical flats, matrix optics, etalons, beam expanders, collimators and autocollimators, optical tables, optical supports, optical systems and photographic components.

### **ELT 281-293—SPECIAL TOPICS IN ELECTRONICS TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

## ENVIRONMENTAL CARE TECHNOLOGY

The Environmental Care Technology program prepares students for a wide variety of careers in air, water or wastewater management. Courses provide an understanding of treatment technologies, operations, and corresponding regulations. The program offers preparation for initial employment, state licensing examinations, upgrading of skills, and opportunities for on-the-job training.

The two-year program, requiring 64 credits, leads to the Associate in Applied Science Degree. Technical Certificates for air, laboratory, environmental, and water or wastewater technicians are also offered. The program is offered in Valparaiso.

### ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

#### Technical Courses (38 Credits)

Prefix	No.	Title	Semester Credits
ENV	101	Introduction to Environmental Systems	3
ENV	102	Environmental Administration	3
ENV	103	Environmental Chemistry I	3
ENV	104	Plant Operations—Sanitary	3
ENV	105	Air Pollution Control I	3
ENV	106	Water Treatment	3
ENV	107	Applied Research I	3
ENV	108	Engineering Properties of Earth Materials	3
ENV	203	Environmental Microbiology	3
ENV	204	Basic Fluid Mechanics	3
ENV	214	Environmental Regulations	2
AFS	106	Hazardous Materials	3
CIS	101	Introduction to Microcomputers	3

#### General Education Courses (20 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
SCI	107	Chemistry	3
SCI	108	Chemistry Lab	1
SCI	111	Microbiology	3
SCI	112	Microbiology Lab	1
SOC	101	Human Relations	3

#### Regional Courses (6 Credits)

	<u>6</u>
Total Credits	64



## ENVIRONMENTAL CARE TECHNOLOGY COURSE DESCRIPTIONS

### ENV 101—INTRODUCTION TO ENVIRONMENTAL SYSTEMS

3 Credits

This course provides students with an overview of pollution problems, including water, air, solid waste, radiation, population and noise. Current national and international problems and concerns also discussed.

### ENV 102—ENVIRONMENTAL ADMINISTRATION

3 Credits

An introduction to the political process of environmental law.

### ENV 103—ENVIRONMENTAL CHEMISTRY I

3 Credits

Provides hands-on laboratory training in the application of EPA and state required permit parameters to determine facility compliance. Sampling techniques and preservation methods are also reviewed as well as basic statistical quality control analysis.

### ENV 104—PLANT OPERATIONS—SANITARY

3 Credits

Designed to provide the basic principles of aerobic and anaerobic biological treatment process: activated sludge, trickling filters, lagoons, sludge handling and disinfection. State and federal regulations related to wastewater plants are reviewed.

### ENV 105—AIR POLLUTION CONTROL I

3 Credits

Focuses on understanding air pollution sources, effects and treatment technologies.

### ENV 106—WATER TREATMENT

3 Credits

This course is designed to acquaint students with the basic treatment processes of water supplies including coagulation, sedimentation, filtration, chemical dosage, taste and odor control.

### ENV 107—APPLIED RESEARCH I

3 Credits

Students complete a special project or case study specifically related to the occupational area. Course is conducted as a field project within the framework of actual working experience in business or industry or a research

type case study including data collection and data analysis.

### ENV 108—ENGINEERING PROPERTIES OF EARTH MATERIALS

3 Credits

Emphasizes the development of an understanding of how soils and geologic structures influence ground water flow and facility site selection.

### ENV 109—WATER SUPPLY

3 Credits

This course is designed to cover the elementary engineering aspects of water supply and distribution and maintenance of collection systems.

### ENV 202—APPLIED RESEARCH II

3 Credits

Students complete a special project or case study specifically related to the occupational area. Course is conducted as a field project within the framework of actual working experience in business or industry or a research type case study including data collection and data analysis.

### ENV 203—ENVIRONMENTAL MICROBIOLOGY

3 Credits

A continued study of microorganisms with emphasis on water, wastewater and related public health and stream sanitation problems. Laboratory exercises include bacteriological techniques in the analysis of samples for numbers, types and effects of microbes in the degradation and/or rehabilitation of our air, food and water supplies.

### ENV 204—BASIC FLUID MECHANICS

3 Credits

An introduction to the principles of flow measurement, metering in closed conduits, open channels, streams, storm runoff, pump characteristics, and air flow.

### ENV 208—PLANT OPERATIONS—INDUSTRIAL

3 Credits

Deals with wastewater treatment processes in various industries including coagulation, sedimentation, activated sludge, neutralization, equalization, cyanide and chromate removal. Instrumentation, maintenance and troubleshooting are also covered. Includes operations, laboratory testing, and plant math.

**ENV 212—SOLIDS HANDLING AND DISPOSAL**

2 Credits

An introduction to the theory, equipment and operational procedures of a variety of sludge treatment and disposal techniques. The course will cover processes, equipment, process management and process control for sludge volume reduction, solid reduction, conditioning, stabilization and solids disposal.

**ENV 213—AIR POLLUTION CONTROL II**

3 Credits

Provides in-depth study of various air quality analysis and modeling techniques.

**ENV 214—ENVIRONMENTAL REGULATIONS**

2 Credits

A survey of the major current environmental regulations.

**ENV 215—WASTE DISPOSAL**

3 Credits

This course provides students with a basic understanding of solid and hazardous waste disposal problems.

Topics include landfills, incinerators, composting, recycling and hazardous waste minimization.

**ENV 216—ENVIRONMENTAL CHEMISTRY II**

2 Credits

In-depth study of the analysis of metals and organics. Includes the operation of atomic absorption, gas and liquid chromatography and mass spectrophotometers.

**ENV 281-293—SPECIAL TOPICS IN ENVIRONMENTAL CARE TECHNOLOGY**

3 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Dean/Director of Instruction for more information).

**ENV 299—OPERATOR REVIEW**

3 Credits

This course is designed as a review for a state certification examination in municipal or industrial wastewater treatment.

# HEATING, AIR CONDITIONING AND REFRIGERATION TECHNOLOGY

The Heating, Air Conditioning and Refrigeration Technology program at Ivy Tech is designed to offer students the possibility of developing initial employment and enhancing careers in this field.

Heating, air conditioning and refrigeration technicians may work in service, installation, design, sales, or estimation areas. Entry level positions may be found in factories, hospitals, theaters, restaurants, office buildings, apartment complexes, government agencies, service firms or through self-employment.

A two-year program requires 66 credits and leads to the Associate in Applied Science degree. Technical Certificates are also available in specialized areas.

The program is offered in Gary, Valparaiso, South Bend, Fort Wayne, Lafayette, Kokomo, Muncie, Anderson, Terre Haute, Indianapolis, Richmond, Bloomington, Columbus, Evansville and Sellersburg.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (39 Credits)

Prefix	No.	Title	Semester Credits
HEA	101	Heating Fundamentals	3
HEA	103	Air Conditioning and Refrigeration I	3
HEA	104	Heating Service	3
HEA	106	Air Conditioning and Refrigeration II	3
HEA	201	Cooling Service	3
HEA	202	Electrical Circuits and Controls	3
ELT	113	Basic Electricity	3
IMT	103	Motors and Motor Controls	3
XXX	XXX	Technical Courses	15

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	102	English Composition II or	
ENG	103	Speech or	
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
SCI	101	Physical Science	3
SOC	101	Human Relations	3
SOC	106	Principles of Macroeconomics or	3
SOC	107	Principles of Microeconomics	

### Regional Courses (9 Credits)

	<u>9</u>
Total Credits	66

# **HEATING, AIR CONDITIONING AND REFRIGERATION COURSE DESCRIPTIONS**

## **HEA 101—HEATING FUNDAMENTALS**

3 Credits

Fundamentals applicable to the heating phase of air conditioning. Includes types of units, parts, basic controls, functions, and applications. Emphasizes practices, tools and meter uses, temperature measurement, heat flow, and tubing installation and connecting practices.

## **HEA 103—AIR CONDITIONING AND REFRIGERATION I**

3 Credits

Introduction to compression systems used in mechanical refrigeration, including the refrigeration cycle. Introduces safety procedures and proper uses of tools used to install and service refrigeration equipment.

## **HEA 104—HEATING SERVICE**

3 Credits

Covers procedures used to analyze mechanical and electrical problems encountered when servicing residential heating systems including gas, oil, electric and hydronic heating equipment. Electrical schematics and diagrams, combustion testing, venting and combustion air requirements, installation and service procedures are considered.

## **HEA 106—AIR CONDITIONING AND REFRIGERATION II**

3 Credits

Continues air conditioning and refrigeration fundamentals with further study of compressors, metering devices and an introduction to troubleshooting procedures. Includes procedures of cleaning up a system following compressor burnout, and analysis of how a single problem affects the rest of the system.

## **HEA 107—DUCT FABRICATION AND INSTALLATION**

3 Credits

A specialized course with emphasis placed on reading blueprints common to the sheet metal trade, floor plans, elevations, section, detail and mechanical plans. The student will develop a layout of an air conditioning system, layout of ductwork and fittings, and fabrication of these parts including proper use of hand tools commonly used in sheet metal trade and shop equipment used to fabricate duct work and fittings.

## **HEA 201—COOLING SERVICE**

3 Credits

Covers procedures used to diagnose electrical control problems found in residential air conditioning and refrigeration systems including 24 volt and line voltage controls such as defrost timers, defrost heaters, relays and cold controls with emphasis on schematic and pictorial diagrams.

## **HEA 202—ELECTRICAL CIRCUITS AND CONTROLS**

3 Credits

Study of various kinds of controls as they pertain to the heating, air conditioning and refrigeration field. These include gas controls, oil controls, cooling controls such as humidistats, aquastats and electronic thermostats and temperature controls. Operation of the controls and how they are integrated into complex control systems by using schematic and pictorial diagrams. Component troubleshooting and testing will also be presented.

## **HEA 203—HEAT LOSS AND GAIN CALCULATION**

3 Credits

Covers methods used in calculating building envelope heat loss and heat gain in sizing units for residential and light commercial application. Building construction techniques and energy consumption reduction methods will be discussed.

## **HEA 204—COMMERCIAL REFRIGERATION**

3 Credits

Examines air conditioning and refrigeration systems for commercial use including medium and low temperature applications. Includes refrigeration accessories, metering devices and advance control arrangements.

## **HEA 205—HEAT PUMP SYSTEMS**

3 Credits

Provides an understanding of the different types of heat pumps available for use today. Familiarizes the student with the refrigeration cycle as it applies to the heat pump system. The student will be expected to draw, trace, and follow an electrical schematic of a heat pump. A demonstration of how to charge a heat pump with refrigerant will be given. Selection of the proper heat pump, recording heat loss and gain calculations for the space available. Each student will learn the mechanical components and have the opportunity to troubleshoot a nonfunctioning heat pump.



### **HEA 206—ADVANCED COOLING SERVICE**

3 Credits

Considers methods of troubleshooting electrical and mechanical components of air conditioning and refrigeration systems.

### **HEA 207—HVAC CODES**

3 Credits

Study of state and local codes covering installation, repair, alteration, relocation, replacement and erection of heating, ventilation, cooling and refrigeration systems. Includes job-related costs of material and equipment, labor, warranty, taxes, permits and sub-contracts. Students will estimate service and maintenance contracts.

### **HEA 208—ENERGY MANAGEMENT AND BALANCING**

3 Credits

Deals with reduction in energy usage in a facility, operational and maintenance improvements, new building design standards, shut down and consolidation, alternate energy resources, retrofitting existing buildings and energy awareness. Includes practice in adjusting and setting fan speeds, dampers and other air regulating devices.

### **HEA 209—PSYCHROMETICS/AIR DISTRIBUTION**

3 Credits

A study of the properties of air during the operational variations of temperature and humidity. The atmospheric conditions and the impact of those conditions on the heating-cooling processes and the design of systems for residential and commercial structures are discussed. The sizing and configurations of air delivery duct systems as well as system design methods are included.

### **HEA 210—ALTERNATIVE ENERGY SYSTEMS**

3 Credits

Study of the magnitude of the energy available, the various methods used in collecting this energy, how to use it, and how to store it for heating and cooling work. Components of the systems will be selected—such as sizing collector cells, pump sizing, pipe and duct sizing, and designing distribution systems. Controls for systems will be reviewed. Operating costs and savings will be studied.

### **HEA 211—ABSORPTION SYSTEMS**

3 Credits

Surveys special cooling systems with emphasis on the absorption cycle. Includes ammonia-water and lithium-bromide cycles, types of units, arrangements, parts, function of various parts and applications of units in air conditioning systems, in addition to diagnosis of service problems.

### **HEA 212—ADVANCED HVAC CONTROLS**

3 Credits

Covers control systems beyond ordinary residential and single zone commercial jobs. Includes solid state controls, zoning controls, modulating controls, low ambient controls, heat recovery and energy management controls, economizer controls and pneumatic controls.

### **HEA 213—SALES AND SERVICE MANAGEMENT**

3 Credits

The use of blueprints, specifications, AIA documents, application data sheets, bid forms and contracts in estimating materials and labor in the HACR business. Also includes advertising, direct labor, indirect labor, overhead, warranty coverages, taxes, permits, sub-contracts, margins, mark-ups and profit. Students will estimate service contracts and study service organizations, service procedures, record keeping, parts inventory control, and insurance liability.

### **HEA 214—APPLIED DESIGN**

3 Credits

Provides students with the opportunity to integrate and use knowledge previously gained to design and lay out a complete HVAC drafting for the purpose of drawing and interpreting a drawing for practical use. The layout of the paper, how to proceed with scale drawings and how to read scales, symbols and how to apply them, duct design and how to sketch it and draw it on a layout sheet, supply and returns placement and drawing, and sectional systems drawings, until a final drawing is made showing the structure and system incorporated in one.

### **HEA 281-293—SPECIAL TOPICS IN HEATING, AIR CONDITIONING AND REFRIGERATION TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# INDUSTRIAL LABORATORY TECHNOLOGY

The Industrial Laboratory Technology program provides comprehensive instruction to prepare students for entry level positions as industrial laboratory technicians. Instruction in testing and inspecting at various production stages allows students to perform analyses and compile and evaluate statistical data to determine quality and reliability standards in the manufacturing process. The course of study includes methodologies in compilation and evaluation of statistical data to determine adherence to specified quality or reliability standards. The program will offer students the opportunity to develop skills to test products for dimensions, performance, or chemical characteristics and to develop written and oral reports.

A two-year program requiring 64 credits leads to an Associate in Applied Science Degree. The program is offered in Terre Haute and Indianapolis.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (30 Credits)

Prefix	No.	Title	Semester Credits
ILT	101	Industrial Laboratory Techniques	3
ILT	201	Industrial Instrumentation and Techniques I	3
ILT	202	Industrial Instrumentation and Techniques II	3
ILT	203	Environmental Monitoring	3
CIS	101	Introduction to Microcomputers	3
IST	101	Quality Control Concepts and Techniques I	3
IST	102	Techniques of Supervision I	3
MAT	106	Statistics	3
SCI	103	Physics I	3
SCI	105	Physics II or	
SCI	203	Advanced Physics	3

### General Education Courses (24 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
ENG	201	Technical Writing	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
SCI	107	Chemistry	3
SCI	111	Microbiology	3
SOC	101	Human Relations	3

### Regional Courses (10 Credits)

	<u>10</u>
Total Credits	64

## **INDUSTRIAL LABORATORY TECHNOLOGY COURSE DESCRIPTIONS**

### **ILT 101—INDUSTRIAL LABORATORY TECHNIQUES**

**3 Credits**

Basic skills needed in the industrial laboratory: laboratory safety identification, care, and operation of basic laboratory equipment and glassware; and definition and preparation of reagents. Includes laboratory exercises in the use of selected equipment and the performance of appropriate procedures.

### **ILT 201—INDUSTRIAL INSTRUMENTATION AND TECHNIQUES I**

**3 Credits**

Theoretical aspects of industrial laboratory instrumentation. Imparts the theories and laws that govern the way instruments operate. Laboratory assignments include experimentation in spectrophotometric, separation, and other analytical devices.

### **ILT 202—INDUSTRIAL INSTRUMENTATION AND TECHNIQUES II**

**3 Credits**

Advances theoretical aspects of industrial laboratory instrumentation. Laboratory assignments include experimentation in atomic absorption spectrophotometry.

### **ILT 203—ENVIRONMENTAL MONITORING**

**3 Credits**

Deals with aspects of environmental pollution, providing a realistic and objective view of pollution problems. Includes the role of technology in the identification of environmental pollution.

### **ILT 205—INTRODUCTION TO TECHNOLOGY**

**3 Credits**

Reviews disciplines comprising scientific and engineering

fields of study. Covers physics, chemistry, biology, environmental science, and civil, mechanical, electrical, and industrial engineering. Introduces theory, principles, and practices related to the work of a scientific or engineering assistant/aide. Also safety, professional ethics, and use of the scientific calculator/computer as a scientific and engineering tool.

### **ILT 206—FOOD AND DRUG ANALYSIS**

**3 Credits**

Examines the food processing industry. Laboratory experiments include various analytical techniques and quality control standards utilized by the food industry. Includes classification of drugs and various methods of purification. Laboratory exercises cover instruments and procedures used to monitor the quality and quantity of the composition of a product.

### **ILT 207—WASTEWATER ANALYSIS**

**2 Credits**

This course deals with the chemical and biological analysis of wastewater. Major pollutants of water are determined and quantified. The wastewater treatment steps are discussed so as to determine ideal lab sampling locations. Various wastewater tests such as BOD's, COD's, sedimentation rates and biological examinations will be performed.

### **ILT 281-293—SPECIAL TOPICS IN INDUSTRIAL LABORATORY TECHNOLOGY**

**1-5 Credits**

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# INDUSTRIAL MAINTENANCE TECHNOLOGY

The two-year Industrial Maintenance Technology program requires 64 semester hours for completion and leads to an Associate in Applied Science degree. The program provides instruction in advanced technologies for individuals seeking employment as technicians who are involved in maintaining industrial facilities and equipment. Competencies necessary for industrial maintenance technicians include installation, maintenance and troubleshooting of electrical, mechanical and fluid power systems; basic heating, air conditioning and welding techniques; technical interpretation; automated systems application; safety; and communications, interpersonal relations, math, science, and computer skills.

Industrial maintenance technicians work in a variety of industrial and business settings including manufacturing, production, building management, hotels, hospitals, apartment complexes, and other service-oriented industries. Students may specialize in such areas as electrical, machinery, facilities, and heating/air conditioning.

Technical Certificates are also available in specialized areas. The program is offered in Gary, Valparaiso, South Bend, Elkhart, Fort Wayne, Lafayette, Logansport, Muncie, Terre Haute, Indianapolis, Richmond, Evansville, Tell City, and Sellersberg.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (36 Credits)

Prefix	No.	Title	Semester Credits
IMT	102	Introduction to Print Reading	3
IMT	103	Motors and Motor Controls	3
IMT	104	Fluid Power Basics	3
IMT	105	Heating and Air Conditioning Basics	3
IMT	201	Fluid Power Systems	3
IMT	202	Electrical Circuits	3
IMT	203	Machine Installation/Maintenance	3
IMT	205	Programmable Controllers I	3
AMT	102	Introduction to Robotics	3
ELT	113	Basic Electricity	3
MTT	101	Introduction to Machining	3
WLD	114	Introductory Welding	3

### General Education Courses (18 Credits)

ELT	104	Computer Fundamentals for Technology	3
ENG	101	English Composition	3
ENG	XXX	English Course	3
MAT	104	Algebra/Trigonometry I	3
MAT	XXX	Math Course or	
SCI	103	Physics I	3
SOC	XXX	Social Science Course	3

### Regional Courses (10 Credits)

	<u>10</u>
Total Credits	64



# **INDUSTRIAL MAINTENANCE TECHNOLOGY COURSE DESCRIPTIONS**

## **IMT 102—INTRODUCTION TO PRINT READING**

**3 Credits**

A basic course in reading and interpreting machine shop symbols, welding blueprints, and working drawings used in trades and crafts. Attention is given to dimension, shape, fabrication and assembly. Applies basic mathematics in the solution of print and performance problems.

## **IMT 103—MOTORS AND MOTOR CONTROLS**

**3 Credits**

This course is designed to give each student a complete understanding of all types of electric motors extending from the small shaded pole fan motors to the large three-phase motors. The student will receive an education in motor theory magnetism and how it affects motor rotation. Motor starting components and protective devices for motor circuits will be explained and shown in detail. Heat dissipation from a motor, motor slippage and how frequency affects a motor will be discussed. Multi-speed motors and how they are wired to obtain different speeds, and capacitors and how they affect a motor circuit will be included.

## **IMT 104—FLUID POWER BASICS**

**3 Credits**

This course introduces the student to fluid power principles and components. The student will learn basic circuit design, symbols, and schematic diagrams to build a foundation for career work in fluid power technology.

## **IMT 105—HEATING AND AIR CONDITIONING BASICS**

**3 Credits**

Fundamentals of heating and compression systems used in mechanical refrigeration and air conditioning. Includes combustion process, heat flow, temperature measurement, gas laws and heating and refrigeration cycles and components used in systems. Introduces basic mechanical service procedures used in industry.

## **IMT 108—MEASUREMENTS AND CALIBRATION**

**3 Credits**

This course is designed to provide instruction in the purpose, function, and application of oscilloscopes and related instruments.

## **IMT 120—METALLURGY FUNDAMENTALS**

**3 Credits**

This course studies the fundamentals of thermodynamics and reactions occurring in metals subjected to various kinds of heat treatment. Includes classification and properties of metals, chemical and physical metallurgy, theory of alloys, heat treatment principles as applied to ferrous and non-ferrous materials, tests to determine uses, heat treatment for steels, special steels, and cast iron, powder metallurgy, and use of gas and electric furnaces and their controls.

## **IMT 121—INDUSTRIAL SAFETY**

**3 Credits**

Covers Occupational Safety and Health standards and codes with emphasis on applications of codes to typical work situations. Includes emergency first aid, safety protection, eye protection, chemical handling. Covers employer and employee rights as well as violations, citations, penalties, variances, appeals, record keeping.

## **IMT 122—ELECTRICAL WIRING FUNDAMENTALS**

**3 Credits**

Covers National Electrical Code and its relationship to residential and commercial wiring. Includes mechanical installation of hardware, metering equipment, lights, switches, and design. Tool use as well as material selection is discussed.

## **IMT 201—FLUID POWER SYSTEMS**

**3 Credits**

This course introduces the student to complex fluid power circuits. The student will learn to design, analyze, and troubleshoot complex circuits using schematic diagrams. This course studies detailed construction of typical industrial fluid power components. Students will disassemble and repair fluid power components in the lab.

## **IMT 202—ELECTRICAL CIRCUITS**

**3 Credits**

Fundamentals of single- and three-phase alternating current including parallel circuits, resistance, inductance, switching, fusing, current requirements, transformer applications and motor and motor controls. Also basics of mechanical and electrical installations emphasizing tool use and material selection. Includes electrical troubleshooting diagnosis and repair.

**IMT 203—MACHINE INSTALLATION/  
MAINTENANCE**

3 Credits

Examines procedures for the rigging, removal, repair, maintenance and installation of industrial machinery.

**IMT 205—PROGRAMMABLE CONTROLLERS I**

3 Credits

Introduces the basic theory, operation, and programming of programmable controllers.

**IMT 206—PROGRAMMABLE CONTROLLERS II**

3 Credits

In-depth study of programmable controllers. Emphasizes program language, installation, maintenance and applications.

**IMT 281-293—SPECIAL TOPICS IN INDUSTRIAL  
MAINTENANCE TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# MACHINE TOOL TECHNOLOGY

The Machine Tool Technology program provides training in many facets of industrial processes and related areas. Acquired competencies include tooling and machining, computerized machining, industrial quality control, machine maintenance, industrial supervision, industrial design, plastics manufacturing, and other industrial processes.

Machine Tool technicians are employed in several technically-related career fields. These positions include CNC operator/programmer, tool and die maker, jig and fixture maker, statistical quality technician, specialized machine technician, metallurgical assistant, tooling supervisor, tooling salesperson, laboratory technician, and field service representative. The program requires 66 semester hours for completion and leads to an Associate in Applied Science degree. In addition to the Associate in Applied Science degree, specialized Career Development certificates are also offered.

The program is offered at Gary, South Bend, Fort Wayne, Lafayette, Logansport, Muncie, Indianapolis, and Richmond.

## ASSOCIATE IN APPLIED SCIENCE DEGREE

### Technical Courses (42 Credits)

Prefix	No.	Title	Semester Credits
MTT	101	Introduction to Machining	3
MTT	106	Advanced Print Interpretation	3
MTT	108	Metrology	3
MTT	206	Tooling Design I	3
MTT	208	CNC Programming I	3
XXX	XXX	Technical Area Electives	18

(Select 9 Credits)

AMT	101	Manufacturing Processes	3
DCT	102	Technical Graphics	3
DCT	104	Product Drawing	3
ELT	104	Computer Fundamentals for Technology	3
IMT	102	Introduction to Print Reading	3
IMT	120	Metallurgy Fundamentals	3
MAT	101	Algebra I	3
WLD	114	Introductory Welding	3

### General Education Courses (18 Credits)

ENG	101	English Composition	3
ENG	201	Technical Writing	3
MAT	103	Geometry/Trigonometry	3
SCI	103	Physics I	3
SOC	101	Human Relations	3
XXX	XXX	Course (Selected from HUM, SCI or SOC)	3

### Regional Courses (6 Credits)

	<u>6</u>
Total Credits	66

# MACHINE TOOL TECHNOLOGY COURSE DESCRIPTIONS

## MTT 101—INTRODUCTION TO MACHINING

3 Credits

This course is structured to inform the student of shop safety, industrial terminology, tools and machine tooling, measurement and layout, and laboratory exercises to begin project completion of turning, milling, and grinding applications.

## MTT 102—TURNING PROCESSES I

3 Credits

Turning Processes I is structured to provide the student with shop safety, industrial terminology, and provide laboratory experience toward project completion on the conventional lathe.

## MTT 103—MILLING PROCESSES I

3 Credits

This course is structured to provide the student with shop safety, industrial terminology, and provide laboratory experience towards project completion on the vertical and/or horizontal milling machine.

## MTT 104—MACHINERY HANDBOOK

3 Credits

Explores the intent and use of the Machinery Handbook. Applies principles and concepts in the Machinery Handbook to projects in the industry.

## MTT 106—ADVANCED PRINT INTERPRETATION

3 Credits

Applies mathematics in solving engineering and design related problems in the areas of die design, fabrication, assembly, special machinery, die castings and molds. Emphasis on geometric form and position tolerancing.

## MTT 108—METROLOGY

3 Credits

Techniques of linear and angular measurement and applications for industrial processes and quality control.

## MTT 202—TURNING PROCESSES II

3 Credits

Turning Processes II is structured to provide the student with shop safety, industrial terminology, and provide advanced laboratory experience towards project completion on the conventional lathe.

## MTT 203—MILLING PROCESSES II

3 Credits

Covers shop safety, industrial terminology, and provides advanced laboratory experience towards project completion on the vertical and/or horizontal milling machine.

## MTT 204—ABRASIVE PROCESSES I

3 Credits

Continues shop safety, industrial terminology, and provides laboratory experience towards project completion on a variety of abrasive processing machines.

## MTT 205—ABRASIVE PROCESSES II

3 Credits

Continuing emphasis on shop safety, industrial terminology while providing advanced laboratory experience towards project completion on a variety of abrasive processing machines.

## MTT 206—TOOLING DESIGN I

3 Credits

Concepts of tooling design, assembly, and standards of fabrication. Emphasizes jig and fixture design/components, their application and operational characteristics.

## MTT 207—TOOLING DESIGN II

3 Credits

Concepts of tooling design, assembly, and standards of fabrication. Emphasizes blanking, piercing, and progressive type dies; their design/components including application and operational characteristics.

## MTT 208—CNC PROGRAMMING I

3 Credits

Introduces the student to two and three axis CNC machining. The theory of programming is developed in the classroom with application of the program accomplished on industry type machines. Terminology of coordinates, cutter paths, angle cutting, linear and circular interpolation will be studied.

## MTT 209—CNC PROGRAMMING II

3 Credits

Expands on MTT 208—providing further study in computer-aided numerical control programming. Canned cycles, loops, macros, thread cycles, drilling and pocket milling cycles are used in projects.



**MTT 210—INTERACTIVE CNC**

3 Credits

Principles of CAD and CAM are introduced with various types of CAD/CAM systems studied. Post-processing software is used to produce tool-path programs from XXXX-XXX drawing systems.

**MTT 281-293—SPECIAL TOPICS IN MACHINE TOOL TECHNOLOGY**

1–5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# MANUFACTURING PROCESSES— PLASTICS TECHNOLOGY

The Manufacturing Processes—Plastics Technology program prepares skilled technicians for the plastics field. Training is offered in plastic materials, testing, and fabrication. Attention is given to various types of plastic and includes: thermosetting and thermoplastic compounds; operation, setup, and maintenance of plastics machines; uses of plastics in production processes; injection and extrusion molding; product, mold, and tool design; quality control; print reading; electrical circuits; hydraulics; and pneumatics.

The program offers students the opportunity to develop skills in molding and/or die making for training in plastics technology while acquiring a foundation in machine technology.

The two-year Associate in Applied Science degree program requires 63 credits for completion. Technical Certificates are also available in specialized areas. The program is offered in South Bend, Terre Haute, and Evansville.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (45 Credits)

Prefix	No.	Title	Semester Credits
*PMT	101	Introduction to Plastics	3
*PMT	106	Introduction to Polymer Science	3
**PMT	102	Extrusion Processes	3
**PMT	103	Injection Molding	3
**PMT	206	Plastics Material Testing	3
**PMT	207	Thermoplastic Production Processes	3
**PMT	208	CAD/CAM Applications	3
**PMT	209	Manufacturing of Plastics Products	3
**PMT	281-293	Special Topics in Manufacturing Processes—Plastics	1-5
DCT	102	Technical Graphics	3
DCT	103	CAD Fundamentals	3
ELT	104	Computer Fundamentals for Technology	3
ELT	113	Basic Electricity	3
IMT	104	Fluid Power Basics	3
IMT	205	Programmable Controllers	3
IST	101	Quality Control Concepts and Techniques I	3
MTT	208	CNC Programming I	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	201	Technical Writing	3
MAT	104	Algebra/Trigonometry I	3
SCI	103	Physics I	3
SCI	XXX	Regionally Determined Course	3
SOC	101	Human Relations	3
Total Credits			63

\*Ivy Tech's state-wide course requirements for Plastics Technology specialty.

\*\*Ivy Tech's regionally determined Plastics Technology specialty courses. Five of the seven courses must be chosen.

## **MANUFACTURING PROCESSES—PLASTICS TECHNOLOGY COURSE DESCRIPTIONS**

### **PMT 101—INTRODUCTION TO PLASTICS**

3 Credits

An introductory course covering plastics materials, forms of plastics, product applications, processing methods, assembly and finishing techniques.

### **PMT 102—EXTRUSION PROCESSES**

3 Credits

Introduces the operation and industrial application of the extrusion process. Includes extrusion equipment, production and processing applications, plastic materials, terminology, and reference sources.

### **PMT 103—INJECTION MOLDING**

3 Credits

Concentrates on the injection molding process common to the plastics manufacturing industry. Topics include history and development of the process, the basic injection molding machines, injection molds, productivity and common applications of the process, resins and their selection.

### **PMT 105—LOW PRESSURE TOOLING**

3 Credits

Trains the student to identify, evaluate, select and use materials employed in low-pressure (soft) tooling. Attention is also given to jigs and fixtures, aluminum and sheet metal tools. Course work includes construction of a production mold using one of several materials—wood, plaster, plastics or rubber tooling—covered in the course. The tool built in this course will be used for molding parts in other plastics courses.

### **PMT 106—INTRODUCTION TO POLYMER SCIENCE**

3 Credits

A study of the essential nomenclature, theories, and laws of chemistry with applications to preparation, structures, and properties of polymers. Includes nomenclature of polymers, bonds, chains, and an overview of molecular structures. Also explores the effect of the molecular structure on the physical characteristics of plastic resins.

### **PMT 206—PLASTICS MATERIAL TESTING**

3 Credits

Presents chemical, physical, and mechanical tests used throughout the plastics industry to characterize raw materials and to predict their performance in applications. Includes tests used to measure quality points in finished products.

### **PMT 207—THERMOPLASTIC PRODUCTION PROCESSES**

3 Credits

Discusses primary and secondary processes for producing thermoplastic parts. Includes theory and operating principles of blow molding, thermoforming, compression molding and vacuum forming. Emphasis on the relationship between part design and the appropriate process for producing the part.

### **PMT 208—CAD/CAM APPLICATIONS**

3 Credits

Introduces three-dimensional modeling considerations. Develops a working knowledge of the capabilities and limitations of mold filling analysis and other application software.

### **PMT 209—MANUFACTURING OF PLASTICS PRODUCTS**

3 Credits

Discusses the economic, organizational and quality control strategies employed for efficient production of plastics. Introduces the major secondary finishing, decorating and joining techniques. Develops an understanding of the practical considerations of manufacturing operations.

### **PMT 281-293—SPECIAL TOPICS IN MANUFACTURING PROCESSES—PLASTICS TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# MINING OPERATIONS TECHNOLOGY

The Mining Operations Technology program offers on-the-job training as well as classroom study in coal operation and management. Courses include mining law, blasting and explosives, mine machinery, operations, reclamation mine planning, and economics of mining. The program prepares students for mining jobs ranging from apprentice to experienced machine operator. Entry positions vary with the type and method of mining.

The two-year program, requiring 76 credits, leads to an Associate in Applied Science Degree. The program is offered in Terre Haute.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (58 Credits)

Prefix	No.	Title	Semester Credits
MIN	101	Mining Fundamentals	4
MIN	102	Surface Mining Machinery	3
MIN	104	General Physical Geology	3
MIN	105	Electrical Circuits and Systems	3
MIN	106	Transmission Systems	2
MIN	107	Operation Safety and Accident Prevention	3
MIN	108	Elements of Spoil Management	2
MIN	109	Coal Sampling and Analysis	2
MIN	110	Labor Relations	2
MIN	111	First Aid and Safety Management	3
MIN	112	Elements of Reclamation	3
MIN	113	Coal Preparation Plants	1
MIN	114	Water Drainage and Pollution Law	3
MIN	201	Mining Operation Planning	3
MIN	202	Surface Mine Hydraulics	2
MIN	203	Mine Maps and Surveying	2
MIN	204	Equipment Operations Lab I	2
MIN	205	Blasting Technology and Explosives Safety	4
MIN	206	Techniques of Supervision I	2
CIS	101	Introduction to Microcomputers	3
IMT	104	Fluid Power Basics	3
WLD	114	Introductory Welding	3

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	103	Speech	3
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
MAT	103	Geometry/Trigonometry	3
SOC	101	Human Relations	3
Total Credits			76



# **MINING OPERATIONS TECHNOLOGY COURSE DESCRIPTIONS**

## **MIN 101—MINING FUNDAMENTALS**

4 Credits

Fundamentals of mining with emphasis on management and safety. Deals with geological factors affecting mineral formation, U.S. mineral resources, and methods of mining. Includes tours of surface mines in the local area.

## **MIN 102—SURFACE MINING MACHINERY**

3 Credits

Covers concepts and operating principles of all types of surface mining machinery. Includes student reports of visits to area mines focusing on structural defects, safe operation and maintenance of mines, operator training and skills, and life expectancy of workers.

## **MIN 104—GENERAL PHYSICAL GEOLOGY**

3 Credits

Fundamentals of geology and the geological history of North America, with emphasis on the Mississippian and Pennsylvanian periods. Examines sediments and sedimentary rock especially those allied with coal beds. Includes field trips in the local area.

## **MIN 105—ELECTRICAL CIRCUITS AND SYSTEMS**

3 Credits

Introduces principles of electricity pertaining to machine operation. Includes conductors and conductor sizes, magnetic circuits, coil polarities, and AC and DC motors.

## **MIN 106—TRANSMISSION SYSTEMS**

2 Credits

Applications of gears and gear drives and mechanical advantage in coal transportation systems including truck, rail, slurry, and conveyor belt.

## **MIN 107—OPERATION SAFETY AND ACCIDENT PREVENTION**

3 Credits

Knowledge and skills useful in public relations and safety education. Develops speaking, listening, and writing skills. Introduces use of the Bureau of Mines Dictionary of Mines. Includes use of safety films and review of wage agreements, forms, and reports required by government agencies.

## **MIN 108—ELEMENTS OF SPOIL MANAGEMENT**

2 Credits

Principles of spoil control with emphasis on planning, use, and management of spoil materials. Includes principles of vegetative survival, deposition of overburden, and slope control.

## **MIN 109—COAL SAMPLING AND ANALYSIS**

2 Credits

Provides laboratory training in approved methods of coal analysis with emphasis on the Bureau of Mines safety requirements.

## **MIN 110—LABOR RELATIONS**

2 Credits

Investigates labor and management approaches to the operation of mines. Emphasis is placed on proper and ethical procedures.

## **MIN 111—FIRST AID AND SAFETY MANAGEMENT**

3 Credits

Covers first aid, dust and noise evaluation, gas detection, safe and unsafe practices, accident reduction, emergency aid for the injured, mine rescue operations, safety duties of mine personnel, and instructor training and certification by the Mine Safety and Health Administration.

## **MIN 112—ELEMENTS OF RECLAMATION**

3 Credits

Land reclamation as it pertains to the surface mining industry. Covers basics of reforestation and reviews the types of grasses and legumes found in different geographical areas. Examines existing federal and state regulations and future trends. Emphasizes the importance of production and reclamation as a working unit.

## **MIN 113—COAL PREPARATION PLANTS**

1 Credit

Purposes and processes of coal preparation plants. Attention is given to raw coal, disposal of refuse and slurry, and coal storage, loading, and mechanics.

## **MIN 114—WATER DRAINAGE AND POLLUTION LAW**

3 Credits

Includes laws and problems pertaining to the control of

water in mining operations. Covers slurry ponds, pit drainage, and acid seepage with emphasis on federal EPA regulations.

**MIN 115—BASIC SURVEYING**

3 Credits

Comprehensive introductory course in performing measurements in horizontal and vertical distances using standard surveying tools and sophisticated electronic equipment. To provide the understanding of proper techniques applicable to land surveying and construction surveying. Includes classroom instruction and field experiences.

**MIN 116—SURVEYING TECHNIQUES I**

3 Credits

Continuation of classroom and field study providing understanding of the relationships of angles and distances. Enables student to perform and record the necessary measurements for land surveying and instruction projects.

**MIN 117—SURVEYING TECHNIQUES II**

3 Credits

Designed to provide the student with working knowledge to perform detailed surveys for land surveying, construction and related projects. Includes the development and understanding of land surveys, field engineering, construction layout, route surveying and topical surveying.

**MIN 118—MAPPING**

1 Credit

A study of map types and applications to the planning and design phases of buildings, highways, reservoirs, streams and other engineered projects. Provides understanding of standard procedural methods of drawing and reading of land surveys, construction plans, topographic and aerial mapping important to government, construction, forestry, land use and utilization companies and agencies.

**MIN 119—PLANNING & MAPPING**

1 Credit

Develops a working knowledge of required detail and the relationships and requirements for providing plans for conversion projects, forestry, construction and geology. Introduces computer aided drafting systems.

**MIN 201—MINING OPERATION PLANNING**

3 Credits

Considers effective planning in daily and long-range mining operations.

**MIN 202—SURFACE MINE HYDRAULICS**

2 Credits

Examines hydraulic and pneumatic systems design and the use of tools and repairing and troubleshooting hydraulic and pneumatic systems. Covers hydraulic and pneumatic valves, oils, gauges, fittings, hoses, and other components.

**MIN 203—MINE MAPS AND SURVEYING**

2 Credits

Focuses on the use of mine maps and surveying techniques applicable to mining. Includes taping, profile leveling, cross-sections, earthwork computations, and transit stadia and transit-tapes surveys.

**MIN 204—EQUIPMENT OPERATIONS LAB I**

2 Credits

Covers practices and devices pertaining to the extraction of overburden and the transportation of coal. Examines equipment used in drainage and electric, hydraulic, and compressed air power and coal preparation machinery.

**MIN 205—BLASTING TECHNOLOGY AND EXPLOSIVES SAFETY**

4 Credits

Instructs persons who are engaged in or directly responsible for the use of explosives in surface mining and reclamation operations in the proper handling, transportation, storage, and use of explosives.

**MIN 206—TECHNIQUES OF SUPERVISION I**

2 Credits

Examines employee development, with emphasis on the responsibilities of the beginning or newly appointed supervisor functioning within the organizational structure. Also covered are techniques for communications, motivation, delegation of authority, interviews, orientation and induction of new employees, and evaluation of employee performance as directed to the Mine Safety and Health Administration's federal regulations and the United Mine Worker's union contracts.

**MIN 207—SURVEYING TECHNIQUES III**

3 Credits

Designed to provide the student with working knowledge to perform detailed surveys for land surveying, construction and related projects. Includes the development and understanding of land surveys, field engineering, construction layout, route surveying and topical surveying.

**MIN 208—SURVEYING/LAND MEASUREMENT  
EXTERNSHIP I**

3 Credits

Field application of surveying techniques.

**MIN 209—SURVEYING/LAND MEASUREMENT  
EXTERNSHIP II**

3 Credits

Advanced application of surveying techniques.

**MIN 210—SURVEYING/LAND MEASUREMENT  
EXTERNSHIP III**

3 Credits

Comprehensive application of surveying techniques.

**MIN 211—SURFACE MINING FIELD STUDY I**

4 Credits

Provides for field projects in surface mining, in compliance with cooperative education policies. Student projects will include data collection and analysis and actual work experience.

**MIN 212—SURFACE MINING FIELD STUDY II**

4 Credits

Provides opportunity for extended practice and skill development in coal extraction and haulage in surface mining.

**MIN 213—ECONOMICS OF MINING AND COST  
CALCULATION**

3 Credits

Investigates the evolution of rules and regulations relating to production and use of minerals. Examines profit margins, taxation, depreciation and depletion allow-

ances, foreign competition and interstate commerce regulations.

**MIN 214—EQUIPMENT OPERATIONS  
LABORATORY II**

1 Credit

Offers practical experience in handling equipment used in the extraction of overburden and the transportation of coal. Includes equipment used in drainage and electric, hydraulic, and compressed air power and coal preparation machinery.

**MIN 215—SURFACE MINING FIELD STUDY III**

4 Credits

Provides opportunities for extended practice and skill development in overburden removal in surface mining.

**MIN 216—SURFACE MINING FIELD STUDY IV**

4 Credits

Provides further opportunities for extended practice and skill development in specified areas of surface mining.

**MIN 217—COAL MINE SUPERVISION**

4 Credits

Introduces coal mine management and supervisory obligations. Attention is given to motivation, employee relations, and management by objectives.

**MIN 281-293—SPECIAL TOPICS IN MINING  
OPERATIONS TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# RECREATIONAL VEHICLE SERVICE TECHNOLOGY

The Recreational Vehicle Service Technology program prepares students for the newly emerging field of Recreational Vehicle Service. A Recreational Vehicle Service Technician services all Recreational Vehicle systems, repairs problems through diagnosis and evaluation; performs general maintenance on appliances, chassis and body, installs accessories and repairs structural damage. Industry contact is developed and maintained through the required internship program. IVY TECH-Elkhart is one of nine sites nationwide approved by the Recreational Vehicle Industry Association to offer the Recreational Vehicle Service Technician program.

The program is offered in Elkhart.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (46 Credits)

Prefix	No.	Title	Semester Credits
RVT	101	Intro to R.V. Service/Customer Relations	2
RVT	102	Electrical Concepts	3
RVT	103	Fluid Power, Heat, and Mechanical Systems	4
RVT	104	L.P. Gas	2
RVT	105	R.V. Electrical Systems Service	5
RVT	106	R.V. Braking, Suspension and Towing Systems Service	3
RVT	107	R.V. Air Conditioning and Absorption Refrigeration Service	4
RVT	108	Heating Systems/Accessory Installation and Service	3
RVT	109	Water Systems and Water Heating	2
RVT	110	Interior Coach	3
RVT	111	Exterior Coach	4
RVT	112	Pre-delivery and Preventative Maintenance	2
RVT	201	Metal Processing and Metallurgy	2
RVT	204	Internship	7

### General Education Courses (18 Credits)

Prefix	No.	Title	
ENG	101	English Composition	3
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
SCI	101	Physical Science	3
SOC	101	Human Relations	3
HUM	XXX	Regionally Determined Course	3
or			
SOC	XXX		
or			
SCI	XXX		
Total Credits			64



## **RECREATIONAL VEHICLE SERVICE TECHNOLOGY COURSE DESCRIPTIONS**

### **RVT 101—INTRODUCTION TO RV SERVICE/ CUSTOMER RELATIONS**

2 Credits

This course covers the use of basic hand tools and equipment used in the repair of recreational vehicles. Service and safety practices, technician liability, applicable laws, service documentation and manuals are discussed. RV classifications, industrial codes and standards will be examined. Techniques, insights, and pertinent knowledge needed to foster positive relationships with customers as well as situations and remedies for dealing with angry customers will be examined.

### **RVT 102—ELECTRICAL CONCEPTS**

3 Credits

This course will acquaint students with the fundamentals of AC/DC electricity and circuitry as it relates to the troubleshooting and repair of recreational vehicles. The use of test equipment and identification of component symbols will be studied and applied on actual RV systems and appliances.

### **RVT 103—FLUID POWER, HEAT, AND MECHANICAL SYSTEMS**

4 Credits

This course provides an overview of pneumatic and hydraulic power generation, controls, and actuation devices found in recreational vehicles. Included is an introductory course exploring the basic principles of gears, levers, pulleys, and their application to simple machines. The effects and application of heat on solids, liquids, and gases will also be studied.

### **RVT 104—L.P. GAS**

2 Credits

L.P. Gas fundamentals, properties and safety as used in the troubleshooting and repair of RV systems within the guidelines of industry and governmental codes and standards are addressed. The use of test equipment and identification of component symbols will be studied and applied on actual RV systems and appliances.

### **RVT 105—RV ELECTRICAL SYSTEMS SERVICE**

5 Credits

This course is designed to provide the necessary skills and knowledge to troubleshoot, repair, and/or replace AC/DC circuitry, components, and auxiliary systems found in recreational vehicles.

### **RVT 106—RV BRAKING, SUSPENSION AND TOW- ING SYSTEMS SERVICE**

3 Credits

This course covers the operation, troubleshooting, repair, and/or replacement of electric brakes, suspension and towing systems in all types of recreational vehicles. Actual RV systems and appliances will be studied and utilized. Appropriate mathematical formulae will be studied.

### **RVT 107—RV AIR CONDITIONING AND ABSORPTION REFRIGERATION SERVICE**

4 Credits

This course will acquaint the student with mechanical and absorption refrigeration principles, troubleshooting, and repair utilizing actual RV systems and appliances. Inspection, maintenance, and replacement techniques are studied.

### **RVT 108—HEATING SYSTEMS/ACCESSORY INSTALLATION AND SERVICE**

3 Credits

This course covers the theory of operation, diagnosis and troubleshooting techniques, and procedures for repair and/or replacement of heating systems, water heating systems, and various after-market accessories.

### **RVT 109—WATER SYSTEMS AND WATER HEATING**

2 Credits

This course covers the theory of operation, diagnosis and trouble-shooting techniques and/or repair/replacement of water systems and water heaters.

### **RVT 110—INTERIOR COACH**

3 Credits

This comprehensive course deals with the installation, troubleshooting, repair, and/or replacement of interior cabinetry, furniture, hardware, paneling, ceilings, flooring, floor coverings, upholstery and soft goods, doors, and other interior components. Basic skills related to working with wood, plastics, and fabrics will be demonstrated and applied.

### **RVT 111—EXTERIOR COACH**

4 Credits

This course details the structural characteristics of various types of recreational vehicles while providing the

skills and knowledge necessary to repair, re-cover, and reseal exterior sidewalls and roofs. Techniques for locating and repairing water and air leaks, window repair, replacement, and basic body repair, touch-up, and painting are demonstrated and applied.

**RVT 112—PRE-DELIVERY AND PREVENTATIVE MAINTENANCE**

2 Credits

This course provides techniques and procedures to ensure proper pre-delivery preparation for new units. Inspection, periodic checks and adjustments, fluid, filter, and belt replacements are covered. Actual vehicles and components will be utilized during the sessions.

**RVT 201—METAL PROCESSING AND METALLURGY**

2 Credits

This course covers the applications of welding and the study of metals utilized in the RV service industry. Use of sheet metal tools, layout, cutting, forming, and fastening will be discussed and applied.

**RVT 204—INTERNSHIP**

7 Credits

In-shop hands-on study within the RV service community. Students will perform all phases of RV service and repair under the supervision of a qualified technician or service manager.

# WELDING TECHNOLOGY

The Welding Technology program offers instruction in several types of welding processes: MIG, TIG, pipewelding, oxy-acetylene gas welding and cutting, and shielded metal arc welding. Coursework includes interpretation of welding blueprints, electrical fundamentals for welding, metallurgy, and OSHA requirements.

A two-year program requiring 66 credits leads to the Associate in Applied Science Degree. Technical Certificates are also available in specialized areas. Programs are offered in Anderson, Evansville, Fort Wayne, Gary, Indianapolis, Kokomo, Lafayette, Madison, Muncie, Richmond, South Bend, Terre Haute, Valparaiso, Sellersburg and Tell City.

## ASSOCIATE IN APPLIED SCIENCE DEGREE PROGRAM

### Technical Courses (48 Credits)

Prefix	No.	Title	Semester Credits
WLD	101	Gas Welding I	3
WLD	103	Arc Welding I	3
WLD	107	Welding Troubleshooting	3
WLD	108	Shielded Metal Arc Welding I	3
WLD	109	Oxy-Acetylene Gas Welding and Cutting	3
WLD	201	Special Welding Processes	3
WLD	202	Arc Welding II	3
WLD	203	Pipe Welding I	3
WLD	204	Pipe Welding II	3
WLD	206	Shielded Metal Arc Welding II	3
WLD	207	Gas Metal Arc (MIG) Welding	3
WLD	208	Gas Tungsten Arc (TIG) Welding	3
WLD	209	Welding Certification	3
WLD	210	Welding Fabrication II	3
IMT	120	Metallurgy Fundamentals	3
XXX	.XXX	Regionally Determined Course	3

### General Education Courses (18 Credits)

ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
SCI	101	Physical Science	3
SOC	101	Human Relations	3
SOC	104	Introduction to Sociology	3
Total Credits			<u>66</u>

# WELDING TECHNOLOGY COURSE DESCRIPTIONS

## WLD 101—GAS WELDING I

3 Credits

An Introduction to basic oxy-acetylene brazing. Involves detailed study of the techniques of making welds in flat positions. Includes gas brazing. Lectures and discussion provide additional background essential to a qualified welder.

## WLD 103—ARC WELDING I

3 Credits

Introduction to arc welding covers the welding of ferrous metals and alloys utilizing Metallic Manual Arc welding methods. Includes procedures in joint design using "T" Joint, Lap Joint, and Butt Joint designs. Single pass and multi-pass techniques are covered. Safety hazards and safe practices in arc welding are emphasized.

## WLD 105—WELDING EQUIPMENT AND ELECTRICAL MAINTENANCE

3 Credits

Focuses on the design of oxy-fuel welding and cutting equipment and electric arc welding and cutting equipment. Theory of operations enables students to perform troubleshooting on the equipment and apply proper maintenance. Examines relationships of voltage, current, and resistance on electrical circuits with emphasis on the production of heat from the flow of electric current through resistance.

## WLD 107—WELDING TROUBLESHOOTING

3 Credits

Covers evaluation of weldments, welding procedures and tolerances, joint design and alignment.

## WLD 108—SHIELDED METAL ARC WELDING I

3 Credits

Designed to provide students with knowledge of shielded metal arc welding operations and equipment. Provides extensive practice time to produce the skills to make satisfactory welds with this process. Safety hazards and safety practices in arc welding are emphasized.

## WLD 109—OXY-ACETYLENE GAS WELDING AND CUTTING

3 Credits

Offers basic instruction in oxy-acetylene welding with emphasis on welding techniques in flat, horizontal, vertical, and overhead positions. Includes brazing and flame cutting. Focus is on safety hazards and safe practices in oxy-acetylene welding and cutting.

## WLD 110—WELDING FABRICATION I

3 Credits

Provides opportunities for practice in hands-on fabrication of welded products. Includes basic equipment used in fabrication.

## WLD 114—INTRODUCTORY WELDING

3 Credits

Designed to provide basic skills and fundamental knowledge in oxyacetylene welding and shielded metal for maintenance welders, auto service and body technicians, and individuals in the mining industry. Industry welding practices and detailed study of techniques used in making all weld positions. Brazing and flame cutting and electrode selection and uses are also covered. Emphasizes safe practices in welding, cutting and shielded metal arc.

## WLD 115—SHOP PRACTICES I

1 Credit

Open use of shop to practice various types of welding to improve operator skill.

## WLD 116—SHOP PRACTICES II

1 Credit

Continued open use of shop to practice various types of welding to improve operator skill.

## WLD 117—SHOP PRACTICES III

1 Credit

Continued open use of shop to practice various types of welding to improve operator skill.

## WLD 201—SPECIAL WELDING PROCESSES

3 Credits

Welding practice with various welding processes and techniques using advanced welding methods, machines and equipment. Presents advanced arc welding with emphasis on use and orientation of submerged arc welding equipment.

## WLD 202—ARC WELDING II

3 Credits

Offers instruction in electrode selections, weld techniques, power supplies and current characteristics in preparation for test.



**WLD 203—PIPE WELDING I**

3 Credits

Provides for extensive practice in the preparation and welding of pipe in the 2G & 5G position. Includes preparation, methods of welding, electrodes and filler wires.

**WLD 204—PIPE WELDING II**

3 Credits

Provides extensive training in the preparation and welding of pipe in the 5G and 6G position. Also covers preparation, method of welding, electrodes and filler wires.

**WLD 205—WELDING CODES, SPECIFICATIONS AND ESTIMATING**

3 Credits

Reviews types of welding codes, testing operations and procedure specifications with attention to filler metals, positions, preheat and heat treatment, backing strips, preparations of base metals, cleaning and defects. Includes instruction in specifications and estimations. Student will prepare estimates for jobs based on calculations of time and materials.

**WLD 206—SHIELDED METAL ARC WELDING II**

3 Credits

Covers S.M.A.W. welding equipment and products used to produce groove type butt welds. Provides extensive practice to develop the skills to achieve satisfactory welds of this type. Safety hazards and safe practices in arc welding are emphasized.

**WLD 207—GAS METAL ARC (MIG) WELDING**

3 Credits

Considers various gas metal arc welding (GMAW)

processes including microwire, flux-core, innershield, and submerged arc with emphasis on metal inert gas welding. Techniques of welding in all positions on various thicknesses of metal.

**WLD 208—GAS TUNGSTEN ARC (TIG) WELDING**

3 Credits

Provides students with thorough knowledge of the gas tungsten arc welding process. Includes detailed study of the techniques of making welds in all positions using the GTAW applications. Lectures and discussion provide additional background information essential to a qualified GTAW welder.

**WLD 209—WELDING CERTIFICATION**

3 Credits

Prepares students for certification in shielded arc, TIG, and MIG welding through study of the qualifications, procedures, and equipment standards. Includes a survey of qualifying agencies, associations, and societies.

**WLD 210—WELDING FABRICATION II**

3 Credits

This course provides for practice in hands-on fabrication, and the use of this equipment will be taught.

**WLD 281-293—SPECIALS TOPICS IN WELDING TECHNOLOGY**

1-5 Credits

A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

# **DIVISION OF GENERAL EDUCATION AND SUPPORT SERVICES**



*The General Education and Support Services Division stimulates the full intellectual, emotional, and social development of each student. General education undergirds, broadens, and augments the college's technical curriculum. Recognizing its essential value, all Associate degree programs require approximately 25% of degree credits in general education. The division also provides a comprehensive skills advancement program which develops basic skills, attitudes and learning processes to assure success in college programs.*

## **GENERAL EDUCATION**

An Associate degree must prepare students to enter the work force and to become full participants in the complex, rapidly evolving multiple environments of American society. The General Education Program provides instruction in mathematics, life and physical sciences, humanities, communication, and social science as well as a learning support system of counseling and tutoring and additional support services.

## **MATHEMATICS AND SCIENCE**

Mathematics is an essential skill vital to the ever-changing needs of our increasingly complex society.

The study of science leads to an understanding of the basic principles of the physical and life processes in our natural world.

The mathematics and science programs provide program-level mathematics and science courses including algebra, geometry/trigonometry, algebra/trigonometry, calculus, math of finance, statistics, finite math, physical science, physics, chemistry, biology, microbiology, and anatomy and physiology.

## **COMMUNICATIONS, SOCIAL SCIENCES, AND HUMANITIES**

Recognizing that language is the foundation for all

learning, the communications program encourages the use of language as a creative tool to develop and organize an understanding of self and others. Individuals develop proficiency in process-oriented composition, oral presentation, and professional writing.

The study of social sciences and humanities explores the commonality and diversity of human experience and culture.

Courses are offered in composition, professional writing, speech writing, technical writing as well as courses in human relations, general psychology, sociology, political science, economics, ethics, and art and music appreciation.

## **BASIC SKILLS ADVANCEMENT COURSES**

Developing basic skills, attitudes and learning processes in order that students may enter and be successful in college programs, the basic skills advancement program is a comprehensive system of services including initial assessment of skills, specialized counseling services, ongoing course placement and classroom and lab instruction in basic mathematics, language, study skills, critical thinking, and social science. Additional learning assistance is provided through small-group and one-on-one tutoring and computer-assisted instruction.

# GENERAL EDUCATION COURSES

Prefix	No.	Title	Credits
Communications			
ENG	101	English Composition	3
ENG	102	English Composition II	3
ENG	103	Speech	3
ENG	150	Technical Communications I	3
ENG	151	Technical Communications II	3
ENG	201	Technical Writing	3
Social Sciences			
SOC	101	Human Relations	3
SOC	102	Introduction to Psychology	3
SOC	103	Intercultural Relations	3
SOC	104	Introduction to Sociology	3
SOC	105	Introduction to Political Science	3
SOC	106	Principles of Macroeconomics	3
SOC	107	Principles of Microeconomics	3
SOC	202	Abnormal Psychology	3
Mathematics			
MAT	101	Algebra I	3
MAT	102	Algebra II	3
MAT	103	Geometry/Trigonometry	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
MAT	106	Calculus	3
MAT	107	Math of Finance	3
MAT	108	Statistics	3
MAT	109	Finite Math	3
MAT	150	Technical Mathematics I	3
MAT	151	Technical Mathematics II	3
MAT	152	Fundamentals of Math	3
Humanities			
HUM	101	Survey of Humanities	3
HUM	102	Ethics	3
HUM	103	Art Appreciation	3
HUM	104	Music Appreciation	3
Life and Physical Sciences			
SCI	101	Physical Science	3
SCI	102	Physical Sci Lab	1
SCI	103	Physics I	3
SCI	104	Physics Lab I	1
SCI	105	Physics II	3
SCI	106	Physics Lab II	1
SCI	107	Chemistry	3
SCI	108	Chemistry Lab	1
SCI	109	Biology	3
SCI	110	Biology Lab	1
SCI	111	Microbiology	3
SCI	112	Microbiology Lab	1
SCI	113	Anatomy & Physiology I	3
SCI	114	Anatomy & Physiology Lab I	1
SCI	115	Anatomy & Physiology II	3
SCI	116	Anatomy & Physiology Lab II	1
SCI	124	Anatomy & Physiology Experimentation Lab I	2
SCI	203	Advanced Physics	3



## GENERAL EDUCATION COURSE DESCRIPTIONS

### COMMUNICATIONS

#### ENG 101—ENGLISH COMPOSITION

3 Credits

Emphasizes competence in organizing and expressing ideas in writing. Instruction focuses upon writing process, structure, patterns, and context.

#### ENG 102—ENGLISH COMPOSITION II

3 Credits

Builds on the writing skills taught in English 101 and emphasizes on-the-job writing situations. Writing assignments will include memos, letters, resumes, and informal reports.

#### ENG 103—SPEECH

3 Credits

Fundamentals of speech, includes preparation and extemporaneous presentation of informative, persuasive and demonstrative speeches, also oral reports appropriate for diverse audiences.

#### ENG 150—TECHNICAL COMMUNICATIONS I

(Only for TC students)

3 Credits

A review of the basic written and spoken English required for a variety of technical fields.

#### ENG 151—TECHNICAL COMMUNICATIONS II

(Only for TC students)

3 Credits

A continued study of the basic written and spoken English required for a variety of technical fields.

#### ENG 201—TECHNICAL WRITING

3 Credits

Builds on the writing skills taught in English 101. Students will demonstrate their ability to prepare a technical report using standard research techniques and demonstrate both written and oral competencies.

## SOCIAL SCIENCES

#### SOC 101—HUMAN RELATIONS

3 Credits

A study of human motivation and behavior. Students learn about themselves and others in order to function effectively.

#### SOC 102—INTRODUCTION TO PSYCHOLOGY

3 Credits

Provides a general survey of the field of psychology. Includes study of learning, motivation, perception, psychological disorders, therapy, and research methods.

#### SOC 103—INTERCULTURAL RELATIONS

3 Credits

Examines the cultural values and ethics of foreign countries in comparison to those of the United States.

#### SOC 104—INTRODUCTION TO SOCIOLOGY

3 Credits

A survey course designed to introduce the student to the science of human society including fundamental concepts, descriptions, and analysis of society, culture, the socialization process, social institutions, and social change.

#### SOC 105—INTRODUCTION TO POLITICAL SCIENCE

3 Credits

An introduction to basic principles, theories and major factors that influence decision-making within the political process. Contemporary issues of national and world politics are studied.

#### SOC 106—PRINCIPLES OF MACROECONOMICS

3 Credits

Provides an overview of macroeconomic issues: The determination of output, employment, unemployment, interest rates, and inflation. Monetary and fiscal policies are discussed, as are public and international economic issues. Introduces basic models of macroeconomics and illustrates principles with the experience of the U.S. and foreign economics.

**SOC 107—PRINCIPLES OF MICROECONOMICS**

3 Credits

Introduces the nature and method of economics, the price system, and capitalism. In addition, the course covers demand, supply, and elasticity, the costs of pro-

duction, and how these costs are determined. Under perfect competition, monopoly, monopolistic competition, and oligopoly concludes with an examination of how factors of production are determined under perfect competition and the various forms of monopoly.

**MATHEMATICS****MAT 101—ALGEBRA I**

3 Credits

Presents an in-depth study of the fundamental concepts and operations of algebra. Introduces algebra through linear equations in one unknown. Includes graphing, powers of ten, scientific notation and the metric system.

**MAT 102—ALGEBRA II**

3 Credits

Provides further study in algebra with emphasis on systems of equations. Includes fractions and quadratic equations, factoring and logarithms.

**MAT 103—GEOMETRY/TRIGONOMETRY**

3 Credits

Covers geometric topics including fundamentals of geometry, polygons, solid geometry, properties of circles, constructions, right triangles and trigonometric ratios as they apply to right and oblique triangles.

**MAT 104—ALGEBRA/TRIGONOMETRY I**

3 Credits

Provides study in algebra including factoring, algebraic fractions, graphing of functions, polar coordinate systems plus right triangle trigonometry.

**MAT 105—ALGEBRA/TRIGONOMETRY II**

3 Credits

Continuation of Algebra/Trigonometry I with emphasis on oblique triangles, graphs of trigonometric functions, radicals, complex numbers, exponential and logarithmic functions, inequalities, variation and trigonometric identities.

**MAT 106—CALCULUS**

3 Credits

Presents an overview of analytical geometry and calculus including conic sections, limits, derivatives and integrals.

**MAT 107—MATH OF FINANCE**

3 Credits

Covers percents, ratios, integers, linear equations, formulas and statistics as applied to business.

**MAT 108—STATISTICS**

3 Credits

Study of the collection, interpretation and presentation of descriptive and inferential statistics. Includes measures of central tendency, probability, binomial and normal distributions, hypothesis testing of one and two sample populations, confidence intervals, chi-square testing, and correlation.

**MAT 109—FINITE MATH**

3 Credits

Review of algebraic expressions and equations, inequalities, metrics, linear programming, conversion between number bases, notation, properties and operations of set theory. Introduces logic, Boolean algebra, and probability.

**MAT 150—TECHNICAL MATHEMATICS I**

(Only for TC students)

3 Credits

Reviews basic mathematics for various technical fields with emphasis on measurement, ratio, proportion, percentage, formula evaluation, and problem solving applications.

**MAT 151—TECHNICAL MATHEMATICS II**

(Only for TC students)

3 Credits

Continued application of mathematical principles and processes to technical fields. Introduces basic geometry with emphasis on equations, squares, square roots and problem solving.

**MAT 152—FUNDAMENTALS OF MATH**

(Only for TC students)

3 Credits

Introduces algebra, scientific notation, linear equations, graphing, metric system, measurement of plane and solid figures.

## HUMANITIES

### HUM 101—SURVEY OF HUMANITIES

3 Credits

Familiarizes students with the interrelated disciplines within the humanities: literature, fine arts, history, music, architecture, and philosophy.

### HUM 102—ETHICS

3 Credits

A study of ethical language, methods of justifying ethical decisions and types of ethical value systems with emphasis on practical applications in terms of personal and social morality.

### HUM 103—ART APPRECIATION

3 Credits

A broad survey of the world's art, from prehistoric to contemporary. Emphasis is on an appreciation of art through understanding its purposes and origins.

### HUM 104—MUSIC APPRECIATION

3 Credits

A non-technical course designed to familiarize the student with the forms of music. Covers instruments of the orchestra, the style characteristics of major composers, commonly used musical terms and pertinent information about composers, performers, and conductors. Directed listening assignments and readings are required.

## LIFE AND PHYSICAL SCIENCES

### SCI 101—PHYSICAL SCIENCE

3 Credits

A non-mathematical introduction to physical concepts and theories demonstrating knowledge of current applications and developing trends in the fields of physics, chemistry, earth science and astronomy.

### SCI 102—PHYSICAL SCIENCE LAB

1 Credit

Provides for applications in experimentation and analysis in the physical sciences.

### SCI 103—PHYSICS I

3 Credits

A practical approach to the basic physics of force, work, rate, momentum, resistance, potential and kinetic energy and power. Applications of these concepts to the four energy systems-mechanical, fluid, electrical and thermal.

### SCI 104—PHYSICS LAB I

1 Credit

Provides for applications in experimentation and analysis in Physics 1.

### SCI 105—PHYSICS II

3 Credits

A continuation of Physics I presenting the concepts of force, transformers, energy converters, transducers, vibrations and waves, radiation, optics and optical systems.

### SCI 106—PHYSICS LAB II

1 Credit

Applications in experimentation and analysis for Physics II.

### SCI 107—CHEMISTRY

3 Credits

An introductory study of chemical operations. Includes atomic structure, chemical bonding, oxidation-reduction, properties of matter, solutions, chemical equilibrium, acids, bases, salts, PH and concentrations.

### SCI 108—CHEMISTRY LAB

1 Credit

Applications in experimentation and analysis for Chemistry.

### SCI 109—BIOLOGY

3 Credits

Introduction to basic concepts of life forms, structures of plants and animals, human body systems, genetics, ecology and behavior. Surveys contemporary issues with regard to human interaction with the natural environment.

### SCI 110—BIOLOGY LAB

1 Credit

Applications in experimentation and analysis in Biology.

**SCI 111—MICROBIOLOGY**

3 Credits

Applications of science to the problems of sterilization, growth and conditions of survival of microorganisms, infection, immunity, residence and isolation techniques.

**SCI 112—MICROBIOLOGY LAB**

1 Credit

Applications in experimentation and analysis for Microbiology.

**SCI 113—ANATOMY AND PHYSIOLOGY I**

3 Credits

A study of the structures, functions and relationships of the systems of the human body and the physical and chemical factors that influence the systems.

**SCI 114—ANATOMY AND PHYSIOLOGY LAB I**

1 Credit

Applications in experimentation and analysis in Anatomy and Physiology I.

**SCI 115—ANATOMY AND PHYSIOLOGY II**

3 Credits

A continuation of the study of the interrelationship of the systems of the human body.

**SCI 116—ANATOMY AND PHYSIOLOGY LAB II**

1 Credit

Provides experience in experimentation and analysis in Anatomy and Physiology II.

**SCI 203—ADVANCED PHYSICS**

3 Credits

A laboratory-intensive course designed for concepts of force, work, rate, resistance, energy, power, force transformers, energy transformers, momentum, vibration and waves, transducers, time constants, radiation and how these work in different energy systems. Sequel course designed for students of the Tech Prep Program.



# BASIC SKILLS ADVANCEMENT COURSE DESCRIPTIONS

## **BSA 001—ENGLISH AS A SECOND LANGUAGE I**

3 Credits

Focuses on the development of English skills and technical vocabulary relevant to the student's chosen field of study. Designed for students whose first language is not English.

## **BSA 002—ENGLISH AS A SECOND LANGUAGE II**

3 Credits

Builds on English skills gained in BSA 001 and further develops English skills and technical vocabulary relevant to the student's chosen field of study. Designed for students whose first language is not English.

## **BSA 007—SPELLING**

1 Credit

Develops spelling skills by thorough practice in spelling with attention to rules and exceptions.

## **BSA 024—INTRODUCTION TO ENGLISH I**

3 Credits

Introduces basic writing skills with emphasis on sentence structure and basic grammar. Paragraph structure is introduced.

## **BSA 025—INTRODUCTION TO ENGLISH II**

3 Credits

Further skills gained in BSA 024 with emphasis on paragraph structure and essay writing.

## **BSA 028—VOCABULARY BUILDING**

2 Credits

Concentrates on developing general English vocabulary as well as vocabulary of a chosen technology. Dictionary skills and context skills are included.

## **BSA 031—READING I**

3 Credits

Emphasizes comprehension, vocabulary, and word attack skills beginning at a basic level.

## **BSA 032—READING II**

3 Credits

Advances skills acquired in BSA 031—comprehension, vocabulary, and word attack and further prepares students for program-level courses.

## **BSA 041—MATHEMATICS I**

1 Credit

Develops the basic computational skills of whole numbers and fractions.

## **BSA 042—MATHEMATICS II**

1 Credit

Reviews basic computational skills of fractions and develops computation skills in decimals.

## **BSA 043—MATHEMATICS III**

1 Credit

Reviews basic computational skills in percents, ratio and proportion and measurement.

## **BSA 045—MATHEMATICS**

3 Credits

Reviews instruction in basic computational skills and their applications.

## **BSA 051—INTRODUCTION TO COLLEGE ALGEBRA**

3 Credits

Concentrates on basic algebra skills in preparation for college algebra.

## **BSA 052—INTRODUCTION TO COLLEGE TRIGONOMETRY**

3 Credits

Develops basic trigonometry skills to prepare the student for further study in trigonometry.

## **BSA 053—INTRODUCTION TO COLLEGE GEOMETRY**

3 Credits

Develops basic geometry skills to prepare the student for further study in geometry.

## **BSA 060—INTRODUCTION TO PHYSICS**

2 Credits

Provides basic instruction for physical concepts and technical vocabulary.

## **BSA 061—INTRODUCTION TO CHEMISTRY**

2 Credits

Introduces basic principles of chemistry and technical vocabulary.

**BSA 062—INTRODUCTION TO MICROBIOLOGY**

2 Credits

Develops a basic understanding of microbiology concepts and technical vocabulary.

**BSA 063—INTRODUCTION TO ANATOMY/  
PHYSIOLOGY**

2 Credits

Studies the basics of the human body as an integrated unit.

**BSA 070—COLLEGE STUDY PRINCIPLES**

3 Credits

Orients and motivates students for success in college. Develops the skills of textbook-reading, note-taking, and test-taking.

**BSA 071—CRITICAL THINKING**

3 Credits

Develops critical thinking and problem-solving skills through the recognition of patterns, cause-and-effect relationships, and consideration of alternatives and priorities.

**BSA 073—INTRODUCTION TO KEYBOARDING**

1 Credit

Deals with basic keyboarding skills applicable to a typewriter or computer.

**BSA 074—INTRODUCTION TO COMPUTER  
LITERACY**

1 Credit

Introduces basic computer literacy skills development.

**BSA 090—GED PREP I**

2 Credits

Presents in-depth preparation for the mathematics and science sections of the GED test.

**BSA 091—GED PREP II**

2 Credits

Offers in-depth preparation for the social studies, reading, and writing sections of the GED test.

**BSA 095—PRINCIPLES OF GED**

3 Credits

Reviews all subject areas on the GED test. Includes mathematics, science, social studies, reading, and writing sections.



## ACCREDITATIONS AND MEMBERSHIPS

Indiana Vocational Technical College is accredited by the North Central Association of Colleges and Schools. Other accrediting agencies and affiliates are listed below by region. The College is a member of the American Association of Collegiate Registrars and Admissions Officers, the American Association of Community and Junior Colleges, the Association of Community College Trustees, and the National Association of College and University Business Officers.

Region	Agency	Program Area
1	North Central Association of Colleges and Schools	All
	Northwest Indiana Chef's Association	Culinary Arts Technology
	The American Culinary Federation Inc.	Culinary Arts Technology
	U.S. Department of Labor	Culinary Arts Technology
	The American Medical Association Committee on Allied Health Education and Accreditation	
	Joint Review Committee on Respiratory Therapy Education	Respiratory Care
	Accreditation Review Committee on Educational Programs for the Surgical Technologist	Surgical Technology
	American Association of Medical Assistants' Endowment	Medical Assistant
	National League for Nursing	Practical Nursing
	Indiana State Board of Nursing	Practical Nursing
2	Indiana State Board of Health	Nurse Aide
	North Central Association of Colleges and Schools	All
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
	National Accrediting Agency for Clinical Laboratory Sciences	Medical Laboratory Technician



Region	Agency	Program Area
2	Indiana State Board of Health	Nurse Aide Qualified Medication Aide Food Handler
	Indiana State Board of Nursing	Practical Nursing Associate in Science in Nursing
	Dietary Managers Association	Dietary Manager
	National League for Nursing	Practical Nursing Associate in Science in Nursing
	Indiana State Emergency Management Agency	Emergency Medical Technician Ambulance
3	North Central Association of Colleges and Schools	All
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
	Joint Review Committee for Respi- ratory Therapy Education	Respiratory Care
	Indiana State Board of Nursing	Practical Nursing
	Indiana State Board of Health	Nurse Aide Director of Activities/ Extended Care Social Services/Long Term Care
	Dietary Managers Association	Dietary Manager
	American Culinary Federation	Culinary Arts
4	North Central Association of Colleges and Schools	All
	National League for Nursing	Associate in Science in Nurs- ing (Completion Option)

Region	Agency	Program Area
4	Indiana State Board of Nursing	Associate in Science in Nursing Practical Nursing
	Indiana State Board of Health	Qualified Medication Aide Nurse Aide
	Dietary Managers Association	Dietary Manager
	The American Medical Association Committee on Allied Health Education and Accreditation	
	National Accrediting Agency for Clinical Laboratory Sciences	Medical Laboratory Technician
	American Association of Medical Assistants' Endowment	Medical Assistant
	Accreditation Review Committee on Educational Programs for the Surgical Technologist	Surgical Technology
	Joint Review Committee on Respi- ratory Therapy	Respiratory Care
	American Dental Association Commission on Dental Accreditation	Dental Assistant
5	National Institute for Automotive Service Excellence	Automotive Service Technology
	North Central Association of Colleges and Schools	All
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
6	Indiana State Board of Health	Qualified Medication Aide
	North Central Association of Colleges and Schools	All

Region	Agency	Program Area
6	Indiana Real Estate Commission	Real Estate Sales Persons Course
	International Technological Association	All
	National Institute for Automotive Service Excellence	Automotive Service Technology
	Indiana State Emergency Management Agency	Emergency Medical Technician Ambulance/Advance
	Indiana State Board of Nursing	Practical Nursing
	Air Conditioning Contractors of America	Heating/Air Conditioning/Refrigeration Technology
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
	American Technical Education Association	Learning Resource Center
	Council for Standards and Human Services	Mental Health Rehabilitation Technology
7	National Association of Industrial Technology	Machine Tool Technology
	Indiana State Board of Health	Nurse Aide Qualified Medication Aide
	North Central Association of Colleges and Schools	All
	National League for Nursing	Practical Nursing
	National Association of Industrial Technology	Automotive Service Automated Manufacturing Industrial Maintenance Drafting/CAD Industrial Laboratory Electronics Statistical Process Control

Region	Agency	Program Area
7	The American Medical Association Committee on Allied Health Education and Accreditation	
	National Accrediting Agency for Clinical Laboratory Sciences	Medical Laboratory Technician
	American Association of Medical Assistants' Endowment	Medical Assistant
	Joint Review Committee on Education in Radiologic Technology	Radiologic Technology
	Indiana State Board of Health	Nurse Aide Social Services/Long Term Care Director of Activities/ Extended Care Qualified Medication Aide
	Data Processing Management Association	Computer Information Systems
	Distributive Education Clubs of America	Administrative Office Technology
	Indiana State Emergency Management Agency	Emergency Medical Technician Ambulance-Advance
	Indiana State Board of Nursing	Practical Nursing
	National Association for Developmental Education	Basic Skills Advancement
8	North Central Association of Colleges and Schools	All
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
	Review Committee on Educational Programs for Surgical Technologists	Surgical Technology
	Joint Review Committee on Education in Radiologic Technology	Radiologic Technology



Region	Agency	Program Area
8	Joint Review Committee for Respiratory Therapy Education	Respiratory Care
	Indiana State Board of Nursing	Practical Nursing
	National League for Nursing	Practical Nursing
	Council for Standards in Human Service Education	Human Services Technology
	American Institute for Design and Drafting	Drafting/CAD Technology
	Indiana State Board of Health	Qualified Medication Aide Nurse Aide Social Service/Long Term Care
	American Culinary Federation Inc.	Culinary Arts Technology
	Chef de Cuisine Association of Indiana, Inc.	Culinary Arts Technology
9	North Central Association of Colleges and Schools	All
	American Hotel and Motel Association	Hotel/Motel Management
	Certified Electronics Technicians International	Electronics Technology
	Indiana State Board of Nursing	Practical Nursing Associate in Science in Nursing
	National League for Nursing	Associate in Science in Nursing (Completion Option)
	Air Conditioning Institute Gas Appliance Manufacturers	HACR
	National Institute for Automotive Service Excellence	Automotive Service Technology
	Indiana State Board of Health	Nurse Aide
	Dietary Managers Association	Dietary Manager
	Educational Institute of National Restaurant Association	Sanitation Certificate

Region	Agency	Program Area
9	Indiana State Emergency Management Agency	Emergency Medical Technician Ambulance
10	North Central Association of Colleges and Schools	All
	Indiana State Board of Nursing	Practical Nursing
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
	Indiana State Board of Health	Qualified Medication Aide
11	North Central Association of Colleges and Schools	All
	Indiana State Board of Health	Nurse Aide
	Indiana State Board of Nursing	Practical Nursing Associate in Science in Nursing
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant
	Indiana State Emergency Management Agency	Emergency Medical Technician Ambulance
12	North Central Association of Colleges and Schools	All
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant

12	Accreditation Review Committee on Educational Programs for the Surgical Technologist	Surgical Technology
	Association of Surgical Technologists	Surgical Technology
	Indiana State Board of Nursing	Practical Nursing Associate in Science in Nursing
13	American Association of Junior and Community Colleges	All
	North Central Association of Colleges and Schools	All
	Indiana State Board of Nursing	Practical Nursing
	Indiana State Board of Health	Qualified Medication Aide Nurse Aide
	Indiana State Emergency Management Agency	Emergency Medical Technician Ambulance
	National Institute for Automotive Service Excellence	Automotive Service Technology
	The American Medical Association Committee on Allied Health Education and Accreditation	
	American Association of Medical Assistants' Endowment	Medical Assistant

## **IVY TECH FOUNDATION**

The Ivy Tech Foundation was established in 1969 as a not-for-profit corporation to serve the needs of Indiana Vocational Technical College (Ivy Tech) and its students.

The primary areas of service of the Foundation are:

- Scholarships and grants-in-aid assistance for students that enable them to enter, remain, and expeditiously complete their studies
- Loans for students who need temporary assistance until other sources of financial assistance can be assessed
- Equipment purchases to increase the level of instructional quality in laboratories and classrooms
- Faculty enhancement through training opportunities, rewards for excellence and inquiry, and funding for projects that bring experts from industry into the classroom
- Seed money for innovative programs of exceptional merit.

The Foundation is a 501.(c).(3) corporation. All gifts to the Foundation qualify as charitable contributions for federal income tax purposes. In addition, these gifts qualify for a special Indiana state income tax credit.



# Index

- Academic grading—definitions and procedures, 8
  - Grade reports, 10
  - Grades, 8
  - Improving a grade, 10
- Accounting Technology, 22
- Accreditations and Memberships, 186
- Administration Office Technology, 27
  - Office Management, 27
  - Legal, 27
  - Medical, 27
  - Information Word Processing, 27
  - Stenography, 27
- Admissions, 1
  - Admissions non-degree, 1
  - Degree objectives, 1
  - Handicapped students, 3
  - International students, 2
  - Limited admissions enrollment, 2
  - Procedures and support documents—
    - Degree objective, 2
  - Basic Skills Advancement Services, 1
  - Transfer students, 2
- Air conditioning, 153
- Applied Fire Science Technology, 121
- Applied Science and Technologies, 120
- Architectural Drafting, 142
- Art, 63, 67, 70, 73, 78
- Assessment testing/services, 1
- Associate in Science Degree, 17
- Associate in Applied Science Degree, 17
- Attendance, 10
- Audit, 8
- Automated Manufacturing Technology, 125
- Automotive Body Repair Technology, 128
- Automotive Service Technology, 131
- Barbering Technology, 134
- Basic Skills Advancement Courses, 183
- Bookstore, 11
- Building Construction Technology, 137
- Business and Industry Training, 18
- Business Management, 31
- Business, Office and Information Systems Technologies, 21
- Cabinetry, 137
- Career counseling, 11
- Carpentry, 137
- Child Development, 82
- Class load, 9
- Class organizations, 12
- Clubs, 12
- College,
  - Accreditations and Memberships, 186
  - Administrative Officers, Central Office, ii
  - Bookstore, 11
  - Fees, 3
  - Goals, v
  - Instructional Centers, vi
  - Instructional Programs, 17
  - Mission, v
  - Rules, 13
  - Work-Study program, 5
- College/Industry Job Title program, 141
- Commercial Photography, 63
- Commercial Video Technology, 67
- Computer-Assisted Design, 142
- Computer Information Systems Technology, 34
- Counseling, 11
- Credit hours, 9
- Culinary Arts Technology, 40
- Custom-designed programs, 18
- Dean's List, 10
- Dental Assistant, 87
- Directory information, 7
- Distribution Management, 43
- Division of Applied Science and Technologies, 120
- Division of Business, Office and Information Systems Technologies, 21
- Division of General Education and Support Services, 176
- Division of Human Services and Health Technologies, 81
- Division of Visual Communications Technologies, 62
- Drafting/CAD Technology, 142
  - Architectural, 142
  - Mechanical, 142
- Drop-and-add, 3
- Due process procedures, 14
- Early Childhood Development, 85
- Electronics Technology, 146
  - Automotive, 146
  - Biological, 146
  - Communications, 146
  - Digital, 146
  - Industrial, 146
  - Robotics, 146
- Emergency closing of campus, 13
- Employer funded education, 7
- Employment, 5, 11
- Enrollment status, 9
- Environmental Care Technology, 150
- Fees, 3
  - Additional expenses, 4
  - General fee (Indiana residents), 3
  - Late registration fee, 3
  - Non-refundable fees, 4
  - Payment of fees, 4
  - Refund policy, 4
  - Tuition (out-of-state residents), 4
- Financial aid, 4
  - Appeals, 7
  - Application procedures, 7
  - Employment and loans, 5
  - Grants and scholarships, 4, 5
  - Veterans' benefits, 6
- Fire Fighters and Police Orphans' Benefits, 6
- Food Service Technology, 89
- Foundation, 194
- General Education Courses, 178
- Grades, 8
  - Grade point, 9
  - Grade point average (GPA), 10
  - Grade reports, 10
  - Improving a grade, 10
  - Standards of progress, 10
  - Unsatisfactory progress, 9
  - Special problems, 10
- Graduation, 10
  - Associate in Science Degree, 11

Graduation—Cont.

- Associate in Applied Science Degree, 11
- Eligibility, 10, 11
- Procedures, 10, 11
- Technical Certificate, 11
- Grants and scholarships, 4, 5
  - Higher Education Awards (HEA), 5
  - Hoosier Scholar Program, 5
  - Ivy Tech Grants-in-Aid, 5
  - Ivy Tech Scholarships, 4, 5
  - Pell Grants, 4
  - Supplemental Educational Opportunity Grant (SEOG), 5
- Graphic Design, 70
- Graphic Media Production Technology, 73
- Handicapped students, 3
- Heating/Air Conditioning/Refrigeration Technology, 153
- Higher Education Awards, 5
- Hotel/Motel Management, 45
- Hoosier Scholar Program, 5
- Housing, 12, 13
- Human Services and Health Technologies, 81
- Human Service Technology, 91
- Industrial Laboratory Technology, 156
- Industrial Maintenance Technology, 158
- Industrial Supervision Technology, 49
- Industrial Training and Development, 18
- Industry-union training funds, 7
- Insurance, 13
- Interior Design Technology, 78
- International students, 2
- Intramural sports, 12
- Ivy Tech Foundation, 194
- Ivy Tech Programs, 197
- Ivy Tech Scholarships, 4, 5
- Job Training Partnership Act, 6
- Late registration, 3
- Learning Resource Center, 11
- Library facilities, 11
- Loans, 5, 6
- Machine Tool Technology, 161
- Manufacturing Processes—Plastics Tech, 164
- Marketing Technology, 53
- Masonry, 137
- Mechanical Drafting, 142
- Medical Assistant, 95
- Medical Laboratory Technician, 99
- Mental Health Rehabilitation Technology, 102
- Mining Operations Technology, 166
- Nondiscrimination Statement, i
- Nursing,
  - Associate in Science in, 105
  - Practical, 109
- Orientation, 3
- Paralegal Technology, 56
- Parking, 13
- Pell Grants, 4
- Photography, 63
- Placement, 11
- Plumbing, 137
- Police and Fire Fighters' Orphans' Benefits, 6
- Practical Nursing, 109
- Printing, 73
- Professional and trade societies, 12
- Protection of Privacy, 7
- Radiologic Technology, 112
- Readmission, 1
- Recreational Vehicle Service Technology, 170
- Refrigeration, 153
- Refunds, 4
- Registration, 1, 3
  - Late registration, 3
  - Procedures, 3
- Reinstatement, 16
- Respiratory Care, 115
- Scholarships, 4, 5
- Short-Term Programs, 17, 18
- Skills Advancement Services, 1
- Social activities, 12
- Sports, 12
- Standards of conduct, 13
- Standards of progress, 10
- State Board of Trustees, ii
- Statistical Process Control Technology, 59
- Student grievances, 15
- Student housing, 12, 13
- Student insurance, 13
- Student organizations and activities, 11, 12
- Student parking, 13
- Student rights and responsibilities, 13
- Student Senate, 12
- Student Support Services, 11
- Student records, 7
- Supplemental Educational Opportunity Grant (SEOG), 5
- Surgical Technology, 118
- Technical Certificate, 17
- Test-out procedures, 3
- Trade Readjustment (TRA), 6
- Transfer credit, 2
- Transfer students, 2
- Transcripts, 1, 7
- Trustees,
  - State Board, ii
- Tuition (out-of-state residents), 4
- Veterans' Benefits, 6
- Violation of laws and ordinances, 14
- Visual Communications Technologies, 62
- Vocational Rehabilitation, 6
- Wastewater Management, 150
- Welding Technology, 173
- Withdrawal procedure, 3
- Word processing, 27
- Work-Study program, 5

# Ivy Tech Programs

	GARY			HAMMOND			VALPARAISO			ELKHART			SOUTH BEND			WARSAW		
	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.
Accounting	X	X		X	X		X	X		X	X		X	X		X		
Admin Office Tech	X	X	X	X	X		X	X		X	X		X	X		X		
Applied Fire Science	X	X																
A.S. in Nursing	X	X																
Automated Manuf	X	X											X					
Auto Body Repair	X	X																
Auto Service	X	X											X					
Building Construct																		
Business Management							X						X					
Child Development													X					
Col/Indus Job Title																		
Commercial Photo													X					
Commercial Video																		
Comput Info System	X	X	X	X	X		X	X		X	X		X	X		X	X	
Culinary Arts				X	X													
Dental Assistant																		
Disrib Management																		
Drafting/CAD	X	X		X	X		X			X	X		X					
Early Childhood Dev																		
Electronics	X	X		X	X		X	X		X	X							
Environmental Care							X	X										
Food Service													X					
Graphic Design																		
Graphic Media Prod																		
Heating/AC/Refrig	X	X					X	X					X					
Hotel/Motel Manage																		
Human Services																		
Industrial Lab	X	X					X			X			X	X				
Industrial Maint	X	X											X	X				
Industrial Supervis	X	X											X	X		X		
Interior Design																		
Machine Tool	X	X											X	X				
Manuf Proc—Plastics													X	X				
Marketing	X	X					X	X					X	X				
Medical Assistant							X	X					X	X				
Medical Lab Techn													X	X				
Mental Health Rehab																		
Mining Operations																		
Paralegal							X			X			X					
Practical Nursing	X																	
Radiologic Tech																		
Recreat Vehicle Serv																		
Respiratory Care							X	X										
Statist Proc Control							X	X										
Surgical Technology							X	X										
Welding	X												X					

# Ivy Tech Programs

	FORT WAYNE			LAFAYETTE			KOKOMO			LOGANSPORT			ANDERSON			MARION		
	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.
Accounting	X	X		X	X		X	X		X			X	X		X	X	
Admin Office Tech	X	X		X	X		X	X		X			X	X		X	X	
Applied Fire Science	X	X																
A.S. in Nursing						X												
Automated Manuf		X			X			X										
Auto Body Repair				X														
Auto Service	X	X		X	X		X	X										
Building Construct	X	X		X			X	X										
Business Management	X	X		X	X													
Child Development	X	X																
Col/Indus Job Title				X														
Commercial Photo																		
Commercial Video																		
Comput Info System	X	X		X	X		X	X		X			X	X				
Culinary Arts	X	X																
Dental Assistant				X														
Distrib Management																		
Drafting/CAD	X	X		X	X		X	X		X	X							
Early Childhood Dev																		
Electronics	X	X		X	X		X	X		X			X	X		X	X	
Environmental Care																		
Food Service																		
Graphic Design																		
Graphic Media Prod																		
Heating/AC/Refrig	X	X		X	X		X	X					X	X				
Hotel/Motel Manage																		
Human Services																		
Industrial Lab	X	X		X	X					X	X							
Industrial Maint				X	X													
Industrial Supervis				X	X													
Interior Design																		
Machine Tool	X	X		X	X		X	X		X	X							
Manuf Proc—Plastics																		
Marketing	X	X		X	X		X	X										
Medical Assistant	X	X		X	X		X	X										
Medical Lab Techn																		
Mental Health Rehab																		
Mining Operations	X																	
Paralegal																		
Practical Nursing	X			X						X								
Radiologic Tech																		
Recreat Vehicle Serv																		
Respiratory Care	X	X					X	X										
Statist Proc Control	X	X					X	X										
Surgical Technology																		
Welding	X			X			X						X					



# Ivy Tech Programs

	MUNCIE		GREENCASTLE		TERRE HAUTE		INDIANAPOLIS		RICHMOND		BLOOMINGTON	
	T.C.	A.A.S.	T.C.	A.A.S.	T.C.	A.A.S.	T.C.	A.A.S.	T.C.	A.A.S.	T.C.	A.A.S.
Accounting	X	X			X	X	X	X	X	X	X	X
Admin Office Tech	X	X			X	X	X	X	X	X	X	X
Applied Fire Science							X	X				
A.S. in Nursing							X	X				
Automated Manuf	X	X			X	X	X	X	X	X		X
Auto Body Repair	X				X		X					
Auto Service	X	X			X	X	X	X	X	X		
Building Construct	X	X			X							
Business Management	X	X			X		X		X	X		
Child Development	X	X					X		X	X		
Co/Indus Job Title					X							
Commercial Photo					X							
Commercial Video	X	X			X	X	X	X	X	X	X	X
Computer Info System							X	X				
Culinary Arts							X	X				
Dental Assistant							X	X				
Distrib Management					X		X	X				
Drafting/CAD		X					X	X			X	X
Early Childhood Dev												
Electronics	X	X			X		X		X		X	X
Environmental Care												
Food Service									X			
Graphic Design					X							
Graphic Media Prod												
Heating/AC/Refrig	X	X			X		X	X	X		X	
Hotel/Motel Manage							X	X				
Human Services							X	X				
Industrial Lab		X			X	X	X	X	X			
Industrial Maint		X			X	X	X	X				
Industrial Supervis		X					X	X				
Interior Design												
Machine Tool	X	X					X		X			
Manuf Proc—Plastics												
Marketing		X			X	X	X	X				
Medical Assistant	X	X			X	X	X	X	X			
Medical Lab Techn					X	X	X	X				
Mental Health Rehab		X										
Mining Operations					X							
Paralegal							X	X			X	
Practical Nursing	X				X	X	X	X				
Radiologic Tech												
Recreat Vehicle Serv												
Respiratory Care												
Statist Proc Control					X							
Surgical Technology												
Welding	X				X							

# Ivy Tech Programs

	COLUMBUS			LAWRENCEBURG			MADISON			EVANSVILLE			TELL CITY			SELLERSBURG		
	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.	T.C.	A.A.S.	A.S.
Accounting	X	X		X			X	X		X	X		X			X	X	
Admin Office Tech	X	X		X			X	X		X	X		X	X		X	X	
Applied Fire Science									X									X
A.S. in Nursing																		
Automated Manuf		X						X			X					X	X	
Auto Body Repair				X												X		
Auto Service		X		X			X	X		X	X		X			X	X	
Building Construct																X	X	
Business Management		X		X			X	X		X	X					X	X	
Child Development																X		
Col/Indus Job Title																		
Commercial Photo		X								X						X		
Commercial Video																		
Comput Info System		X		X			X	X		X	X					X	X	
Culinary Arts																		
Dental Assistant																		
Disrib Management																		
Drafting/CAD	X	X								X						X		
Early Childhood Dev																		
Electronics	X	X					X			X	X					X	X	
Environmental Care																		
Food Service		X								X	X					X	X	
Graphic Design																		
Graphic Media Prod																		
Heating/AC/Refrig	X	X								X	X					X	X	
Hotel/Motel Manage																		
Human Services																		
Industrial Lab										X	X		X			X	X	
Industrial Maint											X							
Industrial Supervis											X							
Interior Design											X					X		
Machine Tool											X							
Manuf Proc—Plastics											X							
Marketing											X							
Medical Assistant				X							X					X	X	
Medical Lab Techn											X							
Mental Health Rehab																		
Mining Operations																		
Paralegal																		
Practical Nursing	X			X												X		
Radiologic Tech																		
Recreat Vehicle Serv																		
Respiratory Care	X	X																
Statist Proc Control																		
Surgical Technology																		
Welding	X			X									X			X	X	



